The Relationship Between Knowledge Management Culture and the Performance of Knowledge Management in the Singapore Police Force: A Critical Realist Approach

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GLOSSARY

5TKMH	Five-Tier Knowledge Management Hierarchy
AFP	Australian Federal Police
CNA	Channel NewsAsia
DBA	Doctor of Business Administration
DPF	Dubai Police Force
EnterpriseSG	Enterprise Singapore
GovTech	Government Technology Agency of Singapore
HKPF	Hong Kong Police Force
ICT	Information and Communication Technology
IT	Information Technology
KM	Knowledge Management
MOU	Memorandum of Understanding
OECD	Organisation for Economic Co-operation and Development
PolCam	Police Camera
SECI	Socialisation, Externalisation, Combination and Internalisation
SOP	Standard Operating Procedures
SPF	Singapore Police Force
UKP	UK Police
UNPAN	United Nations Public Administration Network

ABSTRACT

Knowledge plays a vital role in policing, as the ability to manage knowledge effectively and efficiently has been recognised to contribute positively to the likelihood of mission success (Tan & Al-Hawamdeh, 2001:318). However, the research on knowledge management (KM) in policing is limited as policing is a niche area, and information is tightly controlled. This research aims to explore the KM culture in the Singapore Police Force (SPF) and its relationship, if any, to the performance of KM in the organisation. A critical realist approach is adopted to examine the perceptions of research participants, as they experience the KM activities and practices occurring in the organisation. Data is collected from conducting twenty-two semi-structured interviews and the review of knowledge-related documents and analysed using thematic analysis. The findings indicate that the KM culture, which is in the developmental stage, has resulted in a lack of consistency in the KM practices. Nonetheless, the strong receptivity and sense of personal responsibility towards the practice of KM has the potential to be the catalyst to improve the KM performance in the organisation. In terms of human resource management practices, the results show that the regular staff movements (in terms of job rotations) and sudden staff departures could intersect with the inconsistent practices and result in knowledge loss. The findings also suggest that the frequency and duration of job rotations are factors that may affect the attitude towards the practice of KM. Ample time is needed for knowledge to be transferred and internalised to overcome knowledge loss because of staff movements. These occurrences, if not managed, will lead to the loss of institutional knowledge, both explicit and tacit. For knowledge collaboration, the results outline the discrepancy between the perceived willingness and the actual practice of knowledge sharing with the external stakeholders; the unfamiliarity of the existing KM framework to manage the accessibility of confidential documents has resulted in the limited success of such external collaborations. The management plays a vital role to drive the KM culture by creating the supportive workplace culture, to integrate the KM framework with the work processes and implement the appropriate technological measures. Technology has been identified as an enabler in the practice of KM and plays a pivotal role in the performance of KM in the organisation. The findings may be of interest to human resource management practitioners, researchers with an interest in KM in the public sector and public officers serving in law enforcement or similar fields.

DEDICATION

This is dedicated to my wife, Roxanne, for her unwavering support and understanding as I pursue my dream.

To my sons, Davian and Darryl. May both of you be inspired by this moment; always believe in yourselves and that anything is possible.

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This research journey would not have been possible without the kind support and understanding from all who have contributed to this study in one way or another.

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DECLARATION STATEMENT

Research Thesis Submission

Name*:*	*EDWARD TAN*		
School:	*EDINBURGH BUSINESS SCHOOL*		
Version: *(i.e. First, Resubmission, Final)*	*FINAL*	Degree Sought:	*DBA*

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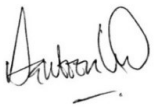
Signature of Candidate*:*		Date:	*16 October 2020*

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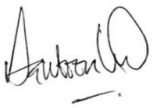
Signature of Individual Submitting:	
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CHAPTER 1 – INTRODUCTION

1.1 Research Background, Rationale and Significance

"Knowledge has become the key to success" (Wenger *et al.,* 2002:6). The ability to wield knowledge improves the capability of the organisation to support its business processes more effectively (Tan & Al-Hawamdeh, 2001:311). With the operating environment becoming ever more competitive, knowledge management (KM) is becoming increasingly important for all organisations as an integral part of the business process for private and public entities (Tan & Al-Hawamdeh, 2001:311). KM involves the systematic coordination of people, processes and technology to derive useful knowledge for the organisation (Jhingut & Nagowah, 2013:388). The goals to be achieved through the use of KM include improved performance (KPMG (2000); Edge (2005); Mavodza & Ngulube (2012)); competitiveness (Jhingut & Nagowah (2013); Griffiths *et al.* (2016); Okere (2017)), improved renewal processes (McAdam & Reid, 2001:317), better decision-making (Cong & Pandya, 2003:25), continuous improvement (Robinson *et al*., 2005:432), secure viability, and overall success (Wiig, 1997:1; Griffiths *et al.,* 2016:270)).

The concept of KM is not new to the public sector, as initiatives have been integrated into business processes for some time (Riege & Lindsay, 2006:24). The potential value of KM in the public sector is evident (Edge, 2005:43), however, far too little attention has been paid to the research of KM in the public domain when compared to the private sector (McEvoy *et al*., 2017:37). There is a shortage of KM studies in the public sector (Edge, 2005:42; McEvoy *et al*., 2019:40), particularly related to policing (Seba *et al.* (2012); Massaro *et al*. (2015); McEvoy *et al*. (2017), as research in the public sector has focused on education and healthcare (Massaro *et al*., 2015:545; McEvoy *et al*., 2017:37). The situation is made worse by the fact that there is only a limited selection of articles that explore the relevant and challenging issues that are applicable across all public sector organisations (Edge, 2005:45). There is also the barrier of collaboration between academics and practitioners: the insights may contain trade secrets and the

practitioners need to protect them, while cost is involved to gain access to the journals behind academic paywalls (Massaro *et al*., 2015:546).

The lack of KM research in policing is not surprising due to the niche area of work; access is limited as information is usually not disclosed to parties external to the police forces. Furthermore, few studies in the literature deal with KM of police forces in the non-Western context, especially in an Asian country like Singapore. The rationale for this research lies in the opportunity to advance the understanding of KM culture and the performance of KM practices in the policing context of an Asian country, Singapore, through an exploration of the particular traits of organisational challenges experienced by the Singapore Police Force (SPF). The resulting outcomes can be capitalised by police forces in other jurisdictions to understand the KM culture and the considerations towards KM implementation. References can also be drawn from this research and applied to auxiliary police forces in Singapore that are privately owned but operating in a similar context, such as Certis Cisco, AETOS Security and SATS Security Services.

In the SPF, policing knowledge includes both explicit and tacit knowledge (SPF, 2014:27). KM has also been recognised as a critical instrument in supporting SPF's functions and operations. It should be acknowledged that not all the identified factors would have the same degree of impact on the SPF, as every entity has its unique set of culture, characteristics and business practices that differentiate it from others. The organisation could then capitalise on the conclusions of this study and consider adopting the suggested measures to enhance its KM strategies. Furthermore, this research has the potential to contribute further knowledge to this specialised domain by addressing the gaps in the current literature base.

KM plays an important role in enhancing the governance and competency of a public goods and service provider for the benefit of society through knowledge sharing and creation (UNPAN, 2003:6). The literature review shows that there has been less discussion of KM in the public sector than in the private sector, and the focus on the policing segment is limited. With the increasing adoption of KM by the public sector, more in-depth research is needed to contribute further

knowledge to this specific field. Human resource management practitioners and researchers with interest to pursue related research in the public sector may also find the findings useful in their respective areas of specialisation.

1.2 Problem Statement

The importance of KM has drawn considerable attention from and within the SPF in recent years. This is evident in the introduction of various initiatives targeted at the elements of KM, such as the expert career track scheme that identifies staff with specialised knowledge/skillsets and allows them to share their know-how with others (Cheong, 2016), and the use of smart devices for information retrieval and sharing (Tan, 2017). While there appears to be no lack of technological solutions for the management of knowledge documents in the SPF, the availability of such platforms may not equate to the active practice of KM in the organisation. Instead, the challenges could be attributed to the lack of interest in practising KM in the organisation. A possible explanation is the knowledge-hoarding mentality as people may feel that they are less likely to be recognised if they share what they know (Standing & Benson, 2000:1108). As a result, some staff may not be open to sharing information and knowledge with others; the details are likely to be truncated even if sharing occurred.

Another challenge for the SPF is to ensure knowledge continuity when there are staff movements, since the planning and implementation of projects and policies may span across a few years. Background knowledge is often lost during staff transitions, as either the records cannot be recovered, due to inadequate documentation efforts, or the details have not been passed down effectively (Mavodza & Ngulube, 2012:5). As a result, the lack of appreciation of the considerations for past initiatives makes it difficult to establish their appropriateness and applicability for future developments.

The SPF has been engaging educational institutions to come up with solutions to address their policing needs (SPF, 2013:27). However, the scope has been limited to supporting elements, such as surveillance and nutrition, but not the core

policing functions or processes, which could be attributed to the need to safeguard confidential information. The research would explore the challenges involved so that innovation and collaboration could be further promoted to improve the capabilities of the SPF.

The findings in the literature suggest that organisational culture is vital to the KM implementation of an organisation (Seba & Rowley, 2010:623; Seyedyousefi *et al.,* 2016:416). This research adopts a targeted approach to explore any existing relationship between the KM culture with the KM performance in the organisation. This will be carried out through an examination of the perception of the research participants on the KM practices, such as how the human resource practices of staff movements and knowledge collaboration with the internal and external stakeholders have been practised in the organisation. The implications of the research findings would be grounded within the wider literature. Suggestions to address the challenges would also be sought from the participants for this research.

1.3 Research Question, Aim and Objectives

This research aims to address the following primary research question: *What is the relationship, if any, between the knowledge management culture and the performance of knowledge management in the SPF?*

Therefore, this research aims to *explore the KM culture in the SPF and its relationship, if any, to the performance of KM in the organisation.*

To support the research aim of this study, the objectives of this study are outlined as follows:

- *To examine the KM context in the SPF;*
- *To investigate the perception of KM culture in the SPF;*
- *To study the impact of staff movements on knowledge continuity in the SPF; and*
- *To assess the receptiveness towards knowledge collaboration between the internal departments and the external stakeholders.*

1.4 Research Methodology

This research adopts a critical realist approach to investigate the KM culture and the performance of KM in the SPF. Critical realism begins with the principle that the human understanding of the independent reality and its casual efficacy is continuously subjected to revision and interpretation, and critical realism holds thought-objects (e.g. beliefs, theories, concepts) about the entities that constitute the reality of being ontologically real yet different from reality itself (Wynn & Williams, 2012:790). It can, therefore, be posited that critical realism recognises the validity of the meanings created by the participants through their own experiences and appreciates their construction of knowledge through practice (Tuli, 2010:101). Therefore, this research seeks to interpret the participants' perspectives of the KM performance through the KM practices experienced in the organisation, so as to appreciate the KM culture in the organisational context, in line with the assumed philosophical perspective.

This study adopts a qualitative inquiry to address the research problem. Qualitative research involves the investigation of a social phenomenon in its natural setting, including how people experience aspects of their lives, how individuals/groups behave, and how organisations function (Macdonald & Headlam, 2009:35; Teherani *et al*., 2015:669). The process aims to appreciate the internal states (worldview, opinions, values, attitudes and shared meanings) of the participants (Patton, 2002:48). As a member of the SPF, the researcher's position enables him to conduct the research in a naturalistic setting and be the principal instrument for data collection, analysis and interpretation (Creswell, 2008:175,176). Reflections on his positionality and the potential effects on the study would be discussed in Sections 6.5 and 6.6, respectively.

Data is collected by conducting twenty-two semi-structured interviews to obtain the perceptions and attitudes of the participants towards the experienced occurrences (Macdonald & Headlam, 2009:39). Also, there would be a review of publicly accessible documents to comprehend the KM culture through

understanding the level of integration between the KM practices and the business processes. This approach also serves to amalgamate and strengthen the validity of the findings from interviewing the participants with an independent source by triangulation.

A comprehensive review of the ethical considerations and a reflection on the positionality as a researcher and an SPF member and ensuing implications have also been carried out. An in-depth discussion of the research methodology can be found in Chapter 3.

1.5 Outline of the Thesis

This thesis is structured in three main stages: (i) establishing the background and research fundamentals *(Chapters 2 and 3)*, (ii) data collection, analysis, discussion *(Chapter 4 and 5)* and (iii) conclusion *(Chapter 6)*. The thesis outline is shown in Figure 1.1.

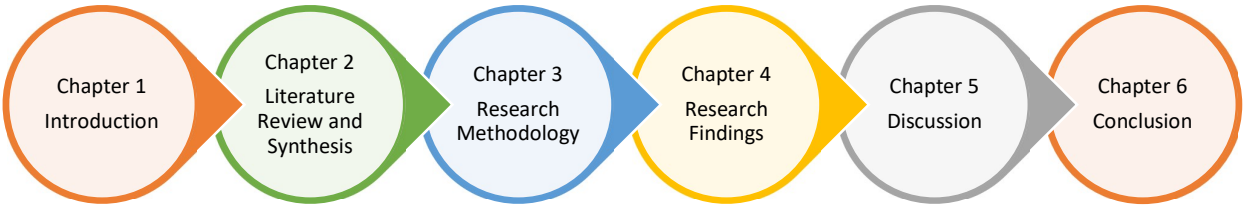

Figure 1.1: Thesis Outline (author's own)

Chapter 2 (Literature Review and Synthesis) reviews the current and relevant literature on KM. It begins with what knowledge is and subsequently establishes the importance of KM to organisations. Key influencing factors to the effective implementation of KM are also discussed. These influencing factors, particularly the culture, would be looked at from a critical realist perspective, given the philosophical position assumed for this research. The reviewed literature would be synthesised, which further defines the research question. The chapter concludes

with the introduction of the conceptual framework to illustrate the outline and key elements of this study.

Chapter 3 (Research Methodology) offers an insight into the research methodology for this research. The philosophical assumptions, the research paradigm, methodological approach and associated methods are described and justified in this chapter. A detailed account of the demographic data of the participants, data collection and analytical process and tools adopted are presented. The pilot study offers the opportunity to test the feasibility of the interview questions and refine the interview delivery prior to the full-scale data collection. Further learning points that surfaced from the main study are included.

Chapter 4 (Research Findings) presents the empirical findings derived from the data collected through conducting the semi-structured interviews and document reviews.

Chapter 5 (Discussion) elaborates on the findings and themes presented in Chapter 4 to show the contributions through linking back to the research questions, based on the experienced phenomenon of the reality of KM culture and practices in the organisation. The interpretations are cross-examined with past research to inform the inferences for this study. Further, the results are discussed to address the aim and question of this research and the implications are construed by the researcher to derive insights from the findings.

Chapter 6 (Conclusion) summarises the conclusions derived from this research. It also serves to inform the implications of the findings and propose recommendations for SPF's consideration to improve its KM practices. Sections are dedicated to reflect on the researcher's effects and experience conducting this research. The chapter concludes by highlighting the limitations of this study and suggesting areas for further research.

1.6 Summary

This chapter has offered an overview of the background and rationale for conducting this research. The research question, aim and objectives have been formulated to address the research problem. The research methodology describes the underlying philosophical assumptions, outlook, research approach and methods for data collection and analysis.

The next chapter reviews the current literature on KM, which would provide the basis for subsequent discussion and justification for this research through the identification of the knowledge gaps that this research endeavours to address.

CHAPTER 2 – LITERATURE REVIEW AND SYNTHESIS

2.1 Introduction

This chapter presents a critical review of the existing literature base surrounding KM. The review would be carried out by demonstrating how the notion of KM has been conceptualised and by demonstrating the various dimensions recognised by academics and practitioners. This chapter begins with an introduction to the definitions of KM and the various perspectives, followed by a review of the KM processes. Next, the key imperatives in the implementation of KM would be studied. The chapter concludes with the discussion of the conceptual framework that would provide the structure and pave the approach for this study, established with critical realism as the philosophical position.

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As a starting point, it is fundamental to examine what knowledge is and how it is linked to other terms that are usually employed in the literature involving the study of knowledge. This would supply the context for subsequent discussion on the applications of knowledge.

2.2 Data, Information, and Knowledge

In the KM literature, terms such as data, information, and knowledge have frequently been used; however, they are not usually used interchangeably since there are divergences in the manner they are defined and the entities they represent. The lack of consistency in the definitions of these terms has made it difficult for rigorous discussions of KM to occur (Hicks *et al*., 2006:19). Instead of trying to define the terms in isolation, some academics differentiate the terms by expressing how they are related to and derived from one another (Liew, 2013:49). Others are of the view that although the interrelationship among the terms is an approach to differentiating the conditions, it should not be conveniently applied since the meanings of these terms and their associations with one another are separate issues altogether (ibid:49).

Data is essentially numbers, facts, and visuals that do not provide any meaning, nor do they explain what they are thought to represent (Liew, 2013:49). Data can be defined as discrete facts (Hicks *et al*., 2006:19) or raw facts (Bhatt, 2001:69). Data becomes information when it is processed with correlations being established (Sensky, 2002:387) or when a dimension of meaning has been added (Davenport & Prusak, 1998:4; Sharratt & Usoro, 2003:188). Bhatt (2001:69) defines information simply as organised data. Data can also be converted into information through the organisation of facts and figures through interpretation (Cong & Pandya, 2003:26).

Knowledge is generated through a further interpretation of information to be used for the specific purpose (Sensky, 2002:387), which is the effect of one's exercising judgement and insights (Cong & Pandya, 2003:26) that finally contributes to decision-making. Wiig (1995:14), Davenport and Prusak (1998:6) and Bhatt (2001:69) summarise the relationship between data and information as 'organisation' and information and knowledge was summarised as 'interpretation'.

Knowledge is dependent on the interpreter's perspectives (Bhatt, 2001:70). The process of interpretation is a result of a person's experience and perspectives, which is shaped by the values and beliefs of the individual that will influence how knowledge is employed in an organisation (Davenport & Prusak, 1998:12). The ability to process information depends on one's cognitive ability and capability to construct knowledge using available modes of expressions and communications (Segundo, 2002:241). As the ability to interpret lies within the individual, the same set of information may result in separate understanding and definition (Sharratt & Usoro, 2003:188). This brings about the significance of the aspect of utility as the mere processing of information from one form to another, which does not guarantee the usefulness of the information presented in a new format (Sensky, 2002:387). Bhatt (2001:69) offers another angle about utility, positing that knowledge is perceived as meaningful information. This suggests that the usefulness of the content is not only about its quality per se but it also depends on how the recipient assesses its value and finds meaning. Knowledge can be inferred to be not only qualitative but also subjective, which makes its management more of an art than a science.

Knowledge is actionable information (Hicks *et al*., 2006:21). The relationship between data, information and knowledge can be depicted as a hierarchy as shown in Figure 2.1.

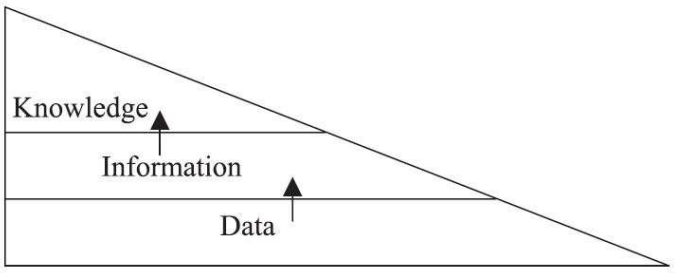


Figure 2.1: Data, Information and Knowledge Hierarchy (Hicks et al., 2006:20)

Hicks *et al.* (2006:22) argue that the definitions of data, information and knowledge are debatable. They acknowledge the individual as an important aspect in the study of KM, and introduced the concept of 'personal knowledge' by defining a level above knowledge—innovation—which is defined as the exploitation of knowledge-based resources and a tier below data to be 'Individual', which is understood as the knowledge contained in the human mind (ibid:22). They also reclassify data as 'facts'; information as 'influences'; and 'solutions' as 'knowledge' to expand the existing convention to the proposed concept (ibid:22). The proposed Five-Tier KM Hierarchy (5TKMH) (ibid:22) is shown in Figure 2.2.

In summary, it can be established that facts and figures, along with their interpretations, serve the purpose of decision making in particular situations that call for the exercise of judgement in the intended outcome by the individuals. While the individuals are presented with the same set of facts and details in a similar contextual situation, they may arrive at very different decisions. While the phenomenon may be explained by the fact that people have differing perspectives, the frameworks discussed above (e.g. 5TKMH) do not elaborate further. Furthermore, they do not seem to recognise that parameters such as experience and education are unique to every individual and are bound to influence the interpretation. The thinking process cannot be effectively coded in words or

quantified in numbers. Although it is assumed that decisions are usually arrived at after the assessment of objective considerations, situational and psychological elements (e.g. mood, self-belief, moral values, personal agenda and mental state) may influence the thought process and result in a different outcome.

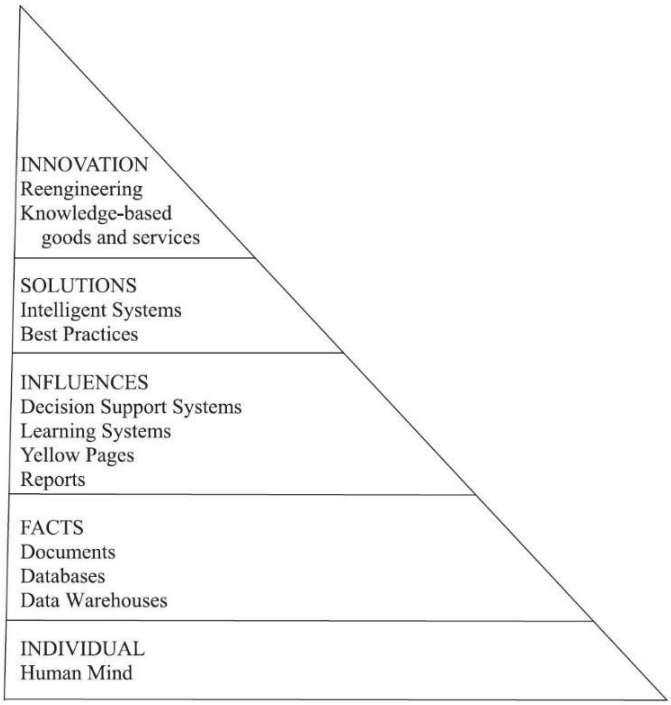


Figure 2.2: Five-Tier Knowledge Management Hierarchy (Hicks et al., 2006:22)

For this research, the definition of knowledge as actionable information is adapted from that of Hicks *et al*. (2006:21). Information and knowledge are the lifeblood of policing (Abrahamson & Goodman-Delahunty, 2014:1), as these are the important inputs for the basis of police actions and functions (Griffiths *et al.,* 2016:269). In policing, a large amount of data and information is collected daily from various avenues and sources, such as sensors (e.g. police cameras), informants, ground investigations and working partners. However, these details are usually scattered and do not offer useful insights for actions to be taken if they are not interpreted to the context they are found. For instance, the knowledge of a group of people planning to meet up will not be useful unless the purpose of the unlawful transaction involved is identified. Therefore, the specifics provided to

the frontline officers need to be in the form that enables them to apply readily and react swiftly, in the face of the dynamic situations they encounter. For officers performing the backend staff work (see Section 3.3.2), the scope of work requires the officers to apply their knowledge to resolve issues under their domain. To make informed decisions requires the officers to have a deep understanding of the domain and a good appreciation of the background and rationale for past decisions, as policy decisions are usually made with consideration to the context of the issues.

With the understanding of how knowledge has been defined and is differentiated from terms such as data and information, it is opportune to examine the various dimensions of knowledge and how knowledge is created and transferred in the following section.

2.3 Knowledge Dimensions and Processes

This section aims to establish an understanding of knowledge beyond its definition, by exploring its various dimensions, how these dimensions are interrelated and the conversion from one form to the other to support knowledge creation and sharing. Moving on from the individual to the organisational level, what follows will examine the significance of knowledge that is entrenched in business processes.

2.3.1 Tacit and Explicit Knowledge

Knowledge can be categorised into 'tacit' (background knowledge) and 'explicit' (foreground knowledge) (Bhatt, 2001:70). Tacit knowledge can be defined as the skills, ideas and experiences in the minds of people, that may not be articulated easily (Chugh, 2015:128). Tacit knowledge is highly personal and deeply rooted and makes the formalisation of such knowledge difficult; such knowledge is best gained through experience (Nonaka, 1991:98; Nonaka & Konno, 1998:42), particularly in the form of shared experience (Lam, 2000:491). There are two dimensions to tacit knowledge: the technical aspect in the form of skills or personal crafts—which are informal and hard to specify—and the cognitive

dimension that comprises mental models and perspectives that are difficult to express in words (Nonaka, 1991:98; Nonaka & Konno, 1998:42). As tacit knowledge is primarily contextual, it is also debatable whether it can be transferred into tangible knowledge effectively (Lahneman, 2004:617).

Polanyi's (1958) illustration of the tacit aspect of knowledge through the metaphors has been a classic reference, cited by many researchers researching the concept. He suggests that the performance of actions such as cycling or swimming involve skill sets which the people practising them may not be aware of when exercising such skills, as it has become an integral part of the practice (ibid:51). He also highlights that, while there are scientific theories or formulas to explain these phenomena, it is almost impossible for anyone to practise these skills by merely applying the rules, as there are many other factors that apply which have not been considered in the formulation of the rules (ibid:51). In Polanyi's (1958:52) own words, "Rules of art can be useful, but they do not determine the practice of an art; they are maxims, which can serve as a guide to an art only if they can be integrated into the practical knowledge of the art. They cannot replace this knowledge".

Tacit knowledge can also be understood as a combination of two components of knowing, where the awareness of one will trigger an instinctive reaction (Polanyi, 1967:16). Tacit knowledge involves 'interiorization' which requires reliance on a theory set to understand and expand its application (ibid:17). One example is a mathematical theory, whereby application (solving problems) can only happen when there is an understanding of the subject (ibid:17). Polanyi (1967) goes a step further to add that knowledge, and skills, in particular, are more difficult—but not impossible—to transfer compared to mathematical or scientific theories (ibid:17). This subtly introduces the explicit dimension of knowledge.

Explicit knowledge is prescriptive (can be in the form of words and numbers) and systematic, which enables it to be shared and communicated easily (Nonaka, 1991:98; Nonaka & Konno, 1998:42). Unlike tacit knowledge, explicit knowledge is accessible through consciousness rather than using feelings or senses, thereby allowing it to be transcribed into words and pictorial forms to be made available

and suitable for application across contexts (Nonaka & Krogh, 2009:636). The ability to transcribe explicit knowledge means that it can be stored in systems, services, products and facilities (Olarinoye *et al.*, 2016:214).

Polanyi (1967:4) highlights the disparity between what individuals know and the extent to which they can express the knowledge: "We can know more than we can tell", thus underlining the ability to communicate as an essential factor in knowledge sharing. Getting the meaning of the message across depends on the sender's ability to adequately encapsulate his intention into words and the recipient's intellectual effort to decode the meaning that the sender intends to communicate (ibid:5). These findings suggest that, for effective communication of explicit knowledge, the recipient should have a shared level of understanding or experience with the sender regarding the context of the message, so that the missing elements left out by the sender can be understood entirely without the need for further elaboration.

The next section examines how knowledge can be converted from one form to another to support knowledge sharing and creation.

2.3.2 The Spiral of Knowledge

The tacit-explicit concept of knowledge was subsequently elaborated by Nonaka (1991) and has developed into one of the key fundamental concepts of KM. He echoes Polanyi's (1958) characterisation of tacit and explicit knowledge and the challenges of communicating both by stating: "To convert tacit knowledge into explicit knowledge means finding a way to express the inexpressible" (Nonaka 1991:99), and he highlights the significance of articulating both to expand in knowledge. Nonaka (1991) develops the tacit-explicit concept into 'The Spiral of Knowledge' involving the 'SECI' (socialisation, externalisation, combination and internalisation) process to explain the dynamic and interactive process of knowledge creation and transfer in an organisation (i.e. tacit to tacit; tacit to explicit; explicit to tacit and explicit to explicit) (Nonaka (1991); Nonaka & Konno (1998); Nonaka *et al.* (2000)) (see Figure 2.3).

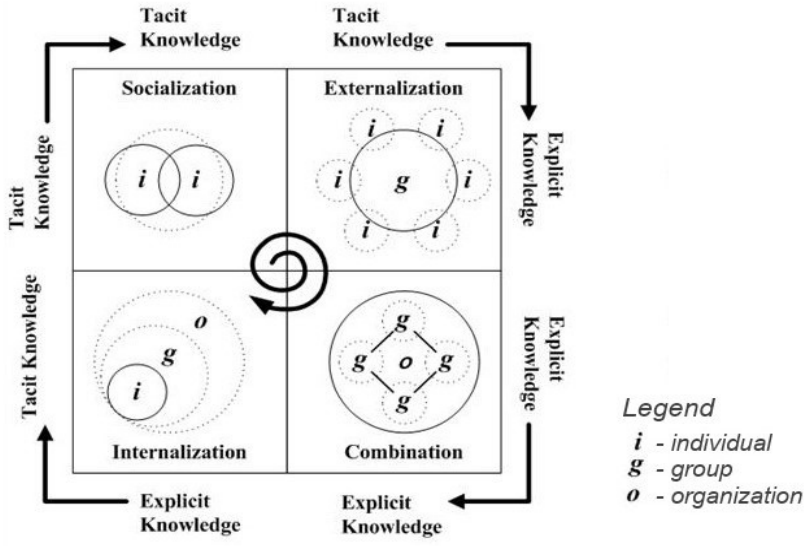


Figure 2.3: Socialisation, Externalisation, Combination and Internalisation (SECI) Process (Nonaka & Konno, 1998:43)

Knowledge in the SPF can be categorised into tacit and explicit knowledge which are closely linked (see Section 2.5) As policing knowledge (e.g. experience) is primarily gained from performing the job function, it is vital to establish how such knowledge can be externalised and shared with other officers. The understanding of the SECI knowledge conversion process aids in understanding and illustrating how the tacit knowledge nested in an individual can be externalised, and how it can be subsequently internalised by the knowledge recipient. The KM culture of the organisation plays a crucial role to support the knowledge conversion process, as it creates the favourable environment to facilitate the process to achieve the KM objectives (see Section 2.6.2).

Nonaka *et al.* (2000) posit that the creation of new knowledge is carried out through the process of 'knowledge conversion', which involves the dynamic interaction between tacit knowledge and explicit knowledge (Nonaka *et al.*, 2000:5; Nonaka & Krogh, 2009:635). New knowledge creation always begins with an individual, and tacit knowledge is gained by another from coaching and observing through shared experiences or by socialising in proximity (Nonaka, 1991:98). With that said, such a process rarely results in the generation of new knowledge, as the knowledge is just transferred from one person to another (*tacit*

to tacit) (ibid:99). When the tacit knowledge can be articulated using languages and visuals that others can understand, knowledge is said to be 'crystallised' or externalised into explicit knowledge, allowing it to be shared with more people (Nonaka *et al*., 2000:9), there is still no generation of new knowledge as the process is still focused on sharing (ibid:9). Nevertheless, it is regarded as the cornerstone of the creation of new knowledge (*tacit to explicit*) (ibid:9). The breakthrough occurs when people can combine and synthesise separate pieces of explicit knowledge together to produce new knowledge (*explicit to explicit*), and the new explicit knowledge is subsequently received and internalised by individuals to expand and develop their existing tacit knowledge (*explicit to tacit*) (ibid:9). The knowledge creation process then continues in a spiral: it expands and amplifies as it goes through each step of the SECI process (Nonaka (1991); Nonaka & Konno (1998); Nonaka *et al*. (2000)).

Critics of the SECI model say it is of limited application for its focus is on the qualities of the knowledge itself while it disregards the contextual setting where knowledge is used (Gebert *et al*., 2003:111). It is not entirely accurate that the SECI approach is independent of the situation in which it is used. If that were the case, it would be just information we are talking about and not knowledge. By being not overly focused on the contextual setting enables the knowledge to have a broader scope of applications and to be readily applied. This is because if the starting point of consideration when attempting to solve any problem is the context, it will be a time-consuming and daunting task to identify the solution with an identical setting. This perspective also stifles innovation and knowledge creation as it is too focused on a contextual fit rather than exploring novel ways to solve problems. A potential limiting factor of the model is that it does not take into account the human mental aptitudes (e.g. intelligence) and organisational characteristics (e.g. perspectives, culture), which influence one's ability to generate new knowledge.

While it is convenient to categorise knowledge into intrinsic and extrinsic bodies of knowledge as defined by Polanyi (1967:19) and Nonaka (1991:98), the challenge lies in the absence of an explicit approach, which makes it difficult to categorise for knowledge retention and application, considering they are not

isolated and are always in tandem with each other. The challenge of transcribing skills into written information and vice versa is limited by one's ability to express him-/herself in words or diagrams. Also, the execution of skills requires the exercise of tacit knowledge that may not translate effectively into words due to the complexity involved. The challenges of categorising knowledge into separate entities are multifaceted, and Ryle (1945) surfaces another dimension for consideration in the following section: the relationship between skills and knowledge.

2.3.3 Knowledge-How and Knowledge-That

Ryle (1945:4, 2009:16) explains his version of the knowledge dimension by comparing between intelligence, knowledge-*that*, and the practical application of intelligence, knowledge-*how*, which can be associated with the explicit knowledge and tacit knowledge proposed by Polanyi (1967) respectively. His definition of knowledge-that is knowing enough rules and theory to perform a task, and knowledge-how is having the skills to do something. He also puts forward two propositions: (i) having the knowledge-that does not equate to having the knowledge-how; knowing the rules does not make one naturally competent in performing a task, and (ii) knowledge-how is a concept prior to the concept of knowing-that; people need to know how to perform a task before they can conceptualise the theory behind how to do it (Ryle, 1945:4, 2009:16).

Ryle's (1945) concept is similar to that of Polanyi (1967) in that both seem to unanimously agree that knowledge first resides in an individual in the form of skills before it can be explained explicitly. Despite this, Ryle (1945) argues that while the tacit and explicit knowledge can be defined separately, they are not distinct and are interrelated when it comes to application. Therefore, having an awareness of the explicit knowledge does not automatically mean that an individual can perform a task skilfully and intuitively, as the knowledge needs to be internalised (Ryle, 1945:6). In other words, "it requires intelligence not only to discover truths, but also to apply them, and knowing how to apply truths cannot, without setting up an infinite process, be reduced to knowledge of some extra bridge-truths" (ibid:6).

Ryle (1945:9) posits that knowledge-how is a notion that comes before the concept of knowing-that. This can be best explained by "the propositional acknowledgement of rules, reasons or principles is not the parent of the intelligent application of them; it is a stepchild of that application" (ibid:9). Ryle (1945) is not only trying to compare and contrast both dimensions of knowledge but to introduce the element of 'intelligence' to acknowledge that every person's ability to comprehend and apply knowledge is unique, thereby explaining their varying success when being subjected to the same context and situation. This is consistent with the discussion in Section 2.3.2 which postulates that every individual is unique and that there is a need to examine beyond the context of the situation to comprehend the principles behind the outcome.

The discussion so far has focused on the dimensions of knowledge and interaction at the individual level. The understanding of knowledge would not be complete without exploring it at an organisational level to appreciate the interaction of people in the form of culture and the dynamics of the organisation; this would be discussed in the following section.

2.3.4 Organisational Knowledge and Knowing

Differing perspectives on organisational knowledge exist at the individual, group and organisation levels (Purcell & O'Brien, 2015:150). This exposes the complex nature of knowledge and how it is viewed at each level of the organisation (ibid:142).

Collins (1993:99) suggests that knowledge can be classified into several types. The first type is the knowledge that can be transferred from one person to another and depends on a person's cognitive ability (ibid:97). Blackler (1995:1023) refers to this knowledge as 'embrained knowledge' and drew on its similarity to Ryle's (1945) 'knowledge-that' (see Section 2.3.3). The second type is 'embodied knowledge' (Collins, 1993:99), which suggests that the actual ability to perform a task is independent of the knowledge level of the task. This interpretation is

analogous to that of Ryle's (1945) 'knowledge-how' as observed by Blackler (1995:1024).

By extending the classification of knowledge from an individual to a social setting involving a group of people, some form of 'encultured knowledge' within a group setting is observed, which is exhibited by the unique way people speak and interact in each group settings (Collins, 1993:98). Blackler (1995:1024) explains that such behaviour shows that the person has achieved a shared level of understanding within the group. At the organisational level, Blackler (1995) presents the concept of 'embedded knowledge', which is defined as the knowledge that resides in the routines of an organisation (ibid:1024). He elaborates 'embedded knowledge' through the comparison between the skills of an individual to that of an organisation, and established that, while the skills of the former involve physical and mental factors, the skills of the latter encompass the dynamics of interpersonal, technological and socio-structural factors, which are entrenched in the processes of the organisation (ibid:1026).

Together, these studies show that knowledge can be understood to exist in two forms: tacit/knowing-how and explicit/knowing-that. The ability to convert from one form to another effectively influences knowledge sharing and creation capability. However, the success of the knowledge sharing and creation process varies, depending on the competency and aptitude of the people involved. In an organisational setting, the culture plays a significant role in the knowledge sharing and creation processes, and this would be discussed in greater detail in the subsequent sections of this chapter (Section 2.6.2 in particular). With the understanding of what knowledge is about for individuals and its application within organisations, it should be realised that all effort would be futile if there were no proper management of knowledge in achieving the organisational objectives.

The following sections would explore KM and its relevance to the public sector, and in particular, to the SPF.

2.4 Knowledge Management Definitions

KM is a multidisciplinary field of study that has developed from a concept to a mainstream organisational necessity for over three decades (Girard & Girard, 2015:1). While it appears that the study spans across an array of domains and there is no single definition that is representative or agreed upon (Girard & Girard (2015)), there are no formal objections to the framing of the definitions since the variations depend on the context of the application (Okere, 2017:87). This suggests that the field of KM is highly adaptable, as its definition takes form and meaning depending on the purposes it is intended to serve. McEvoy *et al*. (2017:45) also recognise that the definition needs to take into consideration its application since the domains are so diversified.

Robinson *et al.* (2005:432) and Wiig's (1995:3) definition of KM highlights the need for a framework to manage knowledge as an organisational asset to support the company's business and operations. This definition positions knowledge not only as know-how but also as something of a defined value to the organisation. The classification of knowledge as an asset also emphasises the need to manage knowledge appropriately to appreciate it. For the SPF, there is a greater emphasis placed on the perspective of knowledge as an organisational asset by introducing the 'expert career track scheme', utilised to identify police officers with specialised knowledge to further develop their skill sets, and also used as a source of knowledge for other officers to tap into (Cheong, 2016).

Girard and Girard (2015:14) focus their KM attention on the process of "creating, sharing, using and managing the knowledge and information of an organization". The description offers a snapshot of the key activities to be performed for KM. Despite the above discussion, KM should not be perceived as a process that revolves only within the organisation: it has a wider implication beyond the organisation that involves its external stakeholders. As Okere (2017:87) puts it, KM spans across multiple levels of interrelationships or networks. Applying to the SPF context, it serves as a reminder that the scope and applicability of KM

extend outside of the organisation itself through capitalising on the competency of the external stakeholders.

While KM has generated increasing interest among academics and corporate practitioners, others are critical of the actual effectiveness of KM. Firstly, KM is claimed to be a management fad (Wilson; 2002; Swan & Scarbrough, 2002:11). It is contested that the foundations on which KM is rested, such as the management of information and work practices, are predicated upon an idealist assumption that the organisational culture promotes the unreserved sharing of information and the staff are given the full autonomy to develop their expertise (Wilson, 2002). However, the reality is that companies have been willing to give up their claimed assets (human resource) and the knowledge these assets possess when market conditions decline (ibid). While the proposition is happening in reality, there is a need to recognise that business strategies are formulated based on a set of pre-defined assumptions, and the extent of the impact of externalities such as market conditions are untested and questionable. This is because organisations have reported success in implementing such strategies when market outlook is stable and predictable, but fresh challenges in hard conditions could have superseded the initial strategic considerations.

Another argument against KM is that one's willingness to share knowledge is questionable if career progression depends on the knowledge he/she possesses (Wilson; 2002). However, it is too simplistic to assume that the evaluation of one's capability ignores the performance aspect but only focuses on the sole criteria of the amount of knowledge that one possesses, and withholding such knowledge enhances a person's value in the organisation. On the contrary, it is through the actions of knowledge sharing that supervisors can identify the staff that are knowledgeable and therefore of value to the organisation, as compared to those who withhold what they know.

Lastly, Swan and Scarbrough (2002:11) posit that "knowledge management itself suffers from the problems it is trying to address". They highlighted the conflicting interests among the different user groups in terms of how knowledge is applied to their specific domains (ibid:13). This leads to knowledge being fragmented and

distributed across disciplinary boundaries when the primary objective of KM is to remedy problems associated with the distribution of knowledge (ibid:13). Conversely, there is a need to recognise that interpreting the usefulness of knowledge differs according to how the knowledge is used by the users, so KM should not be perceived as attempting to instil a one size fits all solution for the conflicting demands. Instead, it should be the avenue to consolidate and integrate knowledge from the various disciplines to achieve a common good for the organisation.

This section has highlighted the various definitions of KM and critiques the applicability and effectiveness of KM in the organisation. In the following section, the nature of policing would be examined and the link between KM and policing needs would be established.

2.5 Knowledge Management in Policing

Tan and Al-Hawamdeh (2001:312) succinctly summarise what police work is all about in the following excerpt:

> *Police work by its very nature is dynamic, complex and stressful. As part of their day-to-day routine, police officers have to deal with a myriad of fast-changing, complex and demanding problems involving crime prevention, incident management, investigation and community policing. Police work is also distinct in that its scope of work is very wide. Police officers often have to deal with a myriad of problems and issues spanning a wide range of areas in the course of their daily work, including social, legal and political issues.*

The above description offers a vignette of police work and highlights a fundamental challenge for police officers: the wide-ranging scope of policing work. The public expects the police officers to know everything when their help is sought; there is little time available for consultation as it often requires immediate actions due to the dynamic development of incidents, and any delay in

response may be perceived to be unprofessional and leads to a loss of public confidence towards the police force. Policing is not merely about performing the duties expected of a police officer; there is also the need to manage public perception and service delivery experience in tandem to keep up and build upon the level of trust and confidence that the public has in the police force. This reinforces the importance of KM in playing an important role to support the daily policing functions, through comprehensive training and timely provision of critical information to the officers at the front-line.

Taking reference from Nonaka's (1991) definitions of knowledge (see Section 2.3.1), Tan and Al-Hawamdeh (2001:313) categorise the knowledge of policing work to be explicit and tacit knowledge. Explicit knowledge is documented knowledge (e.g. doctrines, standard operating procedures) used to guide police actions and decisions, while tacit knowledge relates to the competency, experience and skills of the police officers (ibid:313). Unlike Nonaka (1991) who defines a clear distinction between explicit and tacit knowledge, Tan and Al-Hawamdeh (2001:313) are aligned with Ryle (1945) (see Section 2.3.4) and argue that the two types of knowledge are complementary, rather than exclusive, in the policing context. The proposition of the latter is more applicable to the SPF because policing is complex and dynamic, and duties cannot be discharged appropriately without the use of both forms of knowledge. While the explicit knowledge is vital in guiding actions in the policing context, it needs to be complemented by the skills and experience of the officers to manoeuvre skilfully to achieve the optimal outcomes in their line of duty.

The following sections would examine how both forms of knowledge can be managed by the police force to meet everyday challenges.

2.5.1 Manage Explicit Knowledge of Police Work

As the actions of the police officer are closely guided by standard operating procedures and written guidelines, the explicit knowledge forms the backbone of the police documents. The careful management of explicit knowledge is essential

for the lawful discharge of police duties by the officers, and to ensure consistency in the delivery of police service.

Tan and Al-Hawamdeh (2001:313) and Chavez *et al.* (2005:29) suggest that the management of explicit knowledge starts with knowledge identification. Knowledge identification involves surfacing, analysing and selecting the information for subsequent processing (Tan & Al-Hawamdeh, 2001:314). A substantial amount of information is collected and generated daily by the police through all of its work processes and avenues, and it should be recognised that not all of these are of importance to the organisation, and only those assessed to be of potential value to police work and objectives should be retained for future use (ibid:314).

Sutcliffe and Weber (2003:4) also emphasise the higher returns from investing in the KM framework to interpret information into useful knowledge than trying to find ways to gather more information. The identification and assessment of knowledge require the users to clearly understand what they want to do with the information collected. In Section 2.6.1, it has been established that this is usually easier said than done as there is a natural tendency for people to focus only on matters that are directly related to them, and the officers performing the preliminary assessment may therefore only pick up information they deem relevant to their scope of work, without realising that the discarded information may be useful to other departments.

The scope of policing is so broad that it is almost impossible to have anyone familiar with all the aspects of police work to perform the assessment. Therefore, having the ability to filter and select the necessary information is a valuable skill set. While this process can be supported through software automation, it is a challenge to achieve the optimal results as there will be a higher likelihood of false positives if the definitions are too generic; equally, useful information may not be picked up if the definitions are too narrow. As a result, the knowledge identification process is still a manual-intensive task, and its success depends fundamentally on the competency and experience of the officers performing this role.

After a piece of information has been identified as being of potential value, the next step is to capture said information together with the associated metadata in a form suitable for storage and dissemination, which should be of a standardised format for ease of administration and management of the information (Tan & Al-Hawamdeh, 2001:315). Presently, such information and knowledge are captured and deposited in various formats and locations within the police force (ibid:312) and may pose a challenge to those who need to access the contents. Knowledge needs to be captured and stored in a format with the user in mind to encourage the access and retrieval of information.

The current difficulty faced is not the unavailability of suitable technological solutions to perform this task, but the use of existing legacy systems that were built in silos by the various staff departments since the police force embarked on the journey of computerisation. For instance, the investigation officers may have their platform for investigation-related functions while the officers dealing with intelligence are working on a system which is different from that used by the operations department, and the phenomenon is due to the differing needs and requirements of the users. This reinforces the point discussed earlier, where users are only interested in matters that are related to them, and it is a challenge to integrate everything into a single platform without compromising user experience. Nevertheless, this step is becoming a necessity, considering that all aspects of policing should be coordinated and should work together seamlessly for optimum efficiency and effectiveness.

Captured knowledge needs to be organised and classified logically and consistently for it to be retrieved quickly and efficiently when needed (Tan & Al-Hawamdeh, 2001:315). It is suggested that police forces need to establish the value of KM, identify and categorise the sources of knowledge (also known as 'Yellow Paging' (Chavez *et al*., 2005:11)) within the organisation for the strategies to be devised, to effectively manage both explicit and tacit knowledge (Seba & Rowley, 2010:622). Knowledge should be processed and packaged such that it could be applied in specific scenarios to encourage sharing of knowledge (Bhatt, 2001:72; Chavez *et al.,* 2005:96). Additionally, the correlation between

pieces of knowledge should be made explicit so users can establish relationships with other areas of work (Tan & Al-Hawamdeh, 2001:315). The application of knowledge involves using the knowledge available to address organisational objectives, and in the case of policing, is primarily to solve crimes and enhance safety and security (Chavez *et al.,* 2005:18). For the creation of knowledge, the aim is to generate new and original knowledge through research and development and evaluation of adopted initiatives or technologies to make them perform better (e.g. to collaborate with external organisations such as educational institutions) (ibid:21).

For the SPF, it can be challenging to integrate context into the content. This is because the actions and decisions of the officers are heavily guided by standard operating procedures and doctrines, which do not take into consideration the dynamic situations and different circumstances where discretion should be exercised. While officers are generally empowered to make decisions based on their assessment of the situations they are in, this may be perceived by the public as a lack of objectiveness and consistency, especially in law enforcement where it is heavily scrutinised due to the sensitivity involved. This is one area worthy of additional attention to improve the service quality and decision performance of the organisation.

The storage and retrieval of knowledge are other key aspects of KM. The knowledge documents should be centrally stored and in an efficient manner that facilitates subsequent retrieval and updating (Tan & Al-Hawamdeh, 2001:316). Other than storing the knowledge documents, another important aspect is how to make these materials available to the intended recipients. Effective KM is facilitating the availability of knowledge to those who need it (Alavi & Leidner, 2001:119), but what is essential here is how to surface such knowledge to address the problems faced by police officers in a timely and effective manner (Tan & Al-Hawamdeh, 2001:312). The increased adoption of information technology and the increasing IT competency of officers have enabled police forces to leverage on KM principles and practices (ibid:312). The commoditisation of mobile devices such as smartphones and tablets have also changed the way knowledge can be retrieved and shared (Tan & Rao, 2013:143).

The SPF has recognised the need for frontline officers to have access to critical information on the move and is progressively equipping all its officers with smart devices by the end of 2018 (Tan, 2017). This enables for secured two-way communication of critical incident information between the ground response resources and the command centre to enhance the capabilities of the police force and better management of incidents. While this may improve the performance of decision-making for routine cases where the officers have the time and space to consult the command centre, its effectiveness is questionable during emergencies. This may lead to an unintended consequence whereby officers may develop an over-reliance on the mobile devices for consultations such that their decision-making ability may be impeded.

Lastly, all the knowledge documents should be reviewed periodically and updated whenever there are changes to the operating procedures or legislation to keep them up to date (Tan & Al-Hawamdeh, 2001:316). Organisations should also be more ready to discard knowledge that no longer fits their present context (Bhatt, 2001:73). It is not the volume of knowledge that matters; it is the knowledge that is still relevant and current that is of importance.

In the SPF, the management of information is reviewed every quarter by the KM Steering Committee, which is aimed at enhancing the reliability and relevance of information (SPF, 2007:25). The availability of the latest knowledge documents also improves the confidence of the officers when retrieving the information for training and learning. However, it should not be assumed that officers will proactively seek and look out for such changes as the scope and volume of the knowledge documents can be overwhelming, which may lead to confusion or contradictory practices if the officers' knowledge of the latest processes and procedures are not aligned. As such, there is a need for timely promulgation of the revisions to the targeted recipients through communication channels such as emails and briefings.

This section has investigated the process of managing explicit knowledge in police work and the implications to the policing work in the SPF. Another

important source of knowledge to complement explicit knowledge is tacit knowledge. The characteristics and functions of tacit knowledge in supporting the policing function would be discussed in the following section.

2.5.2 Manage Tacit Knowledge in Police Work

From the earlier discussion in Section 2.3.1, explicit knowledge is defined as documented knowledge used to guide police actions and decisions, while tacit knowledge relates to the competency, experience and skills of the police officers (Tan & Al-Hawamdeh, 2001:313). Tacit knowledge is also more personal, as the experience and insights are unique to each individual (SPF, 2014:27). Although documented knowledge can be retained for an extended period and can be assessed readily, the most valuable is still the tacit knowledge that resides within the human minds (Tan & Rao, 2013:77); such knowledge in the minds is of little value if they are not supplied in a timely way to the people who need them (Teece, 2000:38).

Policing is a dynamic profession. The wide-ranging nature of cases in differing contexts and the ever-changing environment have contributed to the challenges of police work. To cope with these growing demands and challenges, the need for sound KM cannot be overemphasised; the ability to manage the two dimensions of knowledge effectively is posited to be a critical determinant of whether the police force can prepare itself to meet future demands (Tan & Al-Hawamdeh, 2001:313).

Tan and Al-Hawamdeh (2001:316) draw attention to the objective of the management of tacit knowledge in policing is to surface the tacit knowledge to enrich the explicit knowledge, which eventually will increase the knowledge and capability of the police officers and improve organisational performance. This can be achieved through the identification of knowledge and the use of feedback and debriefs to surface the tacit knowledge from within the officers and converting this tacit knowledge into explicit knowledge through analysis, processing and capture (ibid:316). The resultant explicit knowledge can then be organised, stored and accessed by other police officers. Chavez *et al.* (2005:99) echo the need to

link the 'knowledge who' with 'knowledge how' to transform implicit knowledge within the sources to explicit knowledge that is available to others.

The concepts proposed are consistent with Nonaka's (1991) SECI process, as the fundamental belief is that knowledge creation starts with an individual and involves the conversion of knowledge from tacit to explicit and subsequently to be internalised through the explicit to tacit conversion (the proposed model is presented by the red dashed box in Figure 2.4). However, the tacit KM process is only a segment of the overall KM implementation process, which requires the other aspects of explicit knowledge to be integrated as shown in the overall framework (Tan & Al-Hawamdeh, 2001:317). The framework highlights the close relationship between tacit and explicit knowledge and the need to manage both holistically, while recognising the effectiveness of KM extends beyond the careful management of both types of knowledge and include the attributes of the users, and the resources invested into KM.

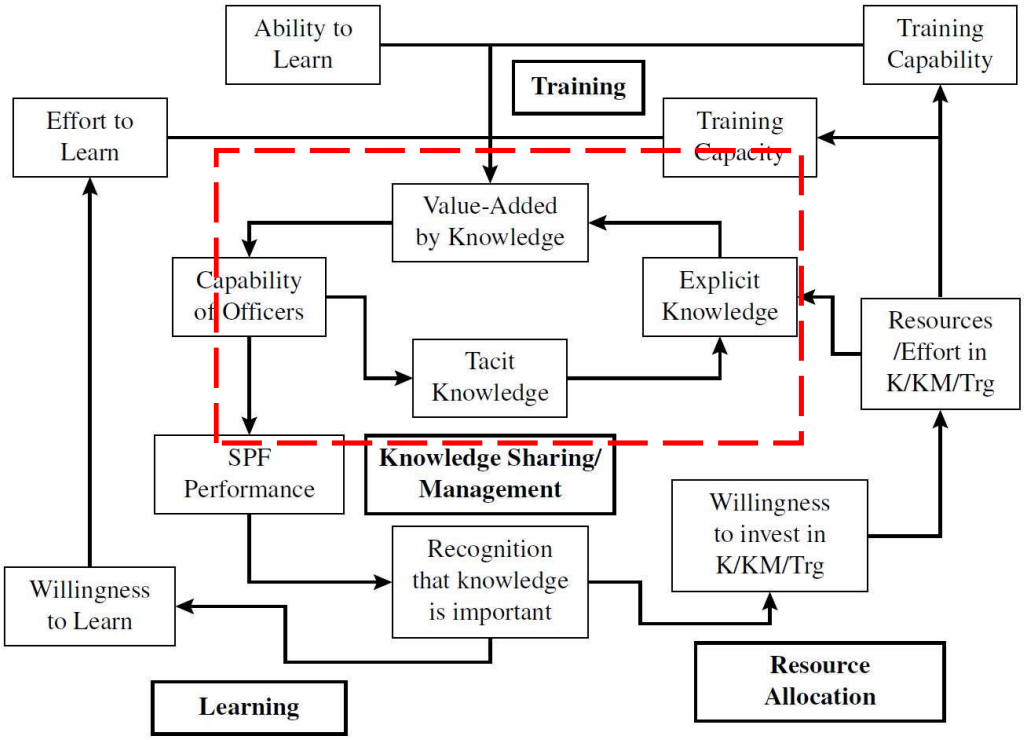


Figure 2.4: Framework for Enhancing the Capability of SPF Officers (Tan & Al-Hawamdeh, 2001:317)

With the appreciation of the different types of knowledge and their importance to police work, the section that follows would identify the key influencing factors of KM and examine how the dynamics of these imperatives can affect the success of KM implementation for the SPF.

2.6 Influencing Factors of Knowledge Management Implementation

From the literature, it has been observed that researchers (e.g. Akhavan *et al*. (2005); Chua & Lam (2005); Okere (2017)) have presented the factors as enablers if they lead to a positive outcome, or barriers if the factors are found out to result in failures. Ajmal *et al.* (2010:158) approach the subject from a different perspective and categorise the various enablers and barriers by comparing the findings from past researchers. They recognise that there are repetitions of the factors in both categories, and this observation leads them to conclude that there are no absolute success or failure factors in KM, as the status (as enablers or barriers) depends on the context and how the factors are managed (ibid:161) (or mismanaged) in the organisational context. They argue that it would be more appropriate to refer to these elements as 'influencing factors' (rather than 'enablers') or 'affecting factors' (instead of 'barriers') to reflect the dual characteristics of these terms (ibid:161).

The applicability of the influencing factors of KM varies among the police forces around the world. This is due to the different focuses of KM as a result of their unique demographics and challenges. A close comparison for Singapore is Hong Kong, which shares many similarities in the geographical, economic and cultural aspects (Chin & Strand, 2008:26). The Hong Kong Police Force (HKPF) faces challenges of increasing expectations from the public for more efficient police services, threats from trans-national crimes, terrorism and anticipated retirement boom of its officers (HKPF, 2014). The HKPF recognises people as its primary assets, and the access to the officers' knowledge is the cornerstone of the organisation's success (ibid). The organisation embraces KM to systematically capture and draw upon a body of tacit and explicit knowledge to enable the

organisation to make better decisions (ibid). HKPF also embraces KM by building a knowledge-driven organisational culture, investing in the use of technology to codify professional knowledge and making KM an integrated part of its work processes and making knowledge accessible to all officers (ibid).

The UK Police (UKP) is a peer model and a benchmark for the SPF. Like their Hong Kong counterpart, some challenges faced by UKP include organised crimes, terrorism, increasing demands from the public, political changes at the international and national levels and the need to increase the skills and capabilities of the forces (NPCC, 2016:6). To overcome the challenges, KM will be stepped up through enabling joint technological solutions to improve data sharing and integration across agencies and forces (ibid:7). Also, there is a recognition of the need for leadership and culture changes in the UKP to contribute to knowledge building and encourage innovation (ibid:8). Furthermore, new technology will be adopted to enhance the processing and analysing of information to aid in decision making and ensuring timely delivery of information and intelligence to operational staff on the ground (ibid:10). There will also be a focus to drive collaboration with external stakeholders to enhance the cohesion and delivery across the criminal justice system (ibid:10).

The Australian Federal Police (AFP) has been a close working partner with the SPF. As a modern police force nested in a globalised country, the AFP faces similar challenges as other law enforcement agencies, including escalating terrorism threats, cybercrimes, transnational and localised crimes (AFP, 2017:7). To address the diversity of the challenges, AFP places a strong emphasis on collaboration and partnership across sectors, from international police to academics and local communities to support policing activities and develop competencies and capabilities (AFP, 2017:32; Young & Meli, 2019:4). Knowledge has been identified as critical to supporting strategic thinking and decision making in the AFP (AFP, 2017:33). As such, there is investment in technology to build up capability in information management and data analytics (ibid:33). Given the complexity of policing challenges, suitable human resource practices will be adopted to address the organisation's need for a diversified and skilled workforce (Young & Meli, 2019:3).

The Dubai Police Force (DPF) offers another perspective of KM by a police force from a Middle Eastern country. The DPF shares similarities with the SPF, such as the focus on using technology for law enforcement and the operating constrain of manpower due to the small population size. The DPF recognises the importance of collaborating with internal and external partners to facilitate the disseminating of tacit and explicit knowledge timely to where the knowledge is needed (Seba *et al*., 2012:119). There is also the realisation of loss of core competencies in the organisation when staff leave or are transferred to other departments (Biygautane & Al-Yahia, 2010:3). The staff who possess the knowledge and skills are identified to transfer and impart their know-how to the others that are dedicated (Biygautane & Al-Yahia, 2010:3; Seba *et al*., 2012:119). Also, the understanding of the cultural context of the society is a key contributing factor towards KM in the organisation (Seba *et al*., 2012:117), as the DPF recognises the influence of culture in facilitating the dissemination of good practices in the organisation (Biygautane & Al-Yahia, 2010:3). This is because the embedded set of practices may either facilitate or present challenges in implementing KM in the organisation.

The mission of the SPF is "to prevent, deter, and detect crime" (SPF, 2016:2). The SPF undertakes a series of initiatives to achieve its objective, namely through crime prevention, incident management, investigation and community policing (Tan & Al-Hawamdeh, 2001:312). Every initiative requires the police officers to be well-informed with an extensive range of information and knowledge. For instance, the police regularly conduct roadblocks, spot-checks and patrols as part of their routine duties. They are also required to manage social and security-related incidents when called upon. To perform these functions professionally and effectively, the police officers need to be familiar with the latest police operating procedures, tactical considerations and the legal powers that they are given under the law (ibid:312). Another critical part of policing work lies in criminal investigations. Police officers responsible for such functions are required to be *au fait* with the investigation and evidence-gathering procedures that comply with current legislation requirements to uphold the integrity of the investigation process (ibid:313).

Like its counterparts from around the world, the SPF is operating in an increasingly demanding and challenging environment, with imminent threats from terrorism and trans-national crimes (SPF, 2018:15). For the SPF, the key elements of its KM Framework are culture, technology and infrastructure (SPF, 2007:24). Also, focus areas targeting operational excellence, manpower and training, capability building and collaboration with stakeholders have been put in place to address the identified challenges (ibid:16,19,43). Therefore, KM plays a vital role in supporting the above initiatives as knowledge is a critical component for effective policing.

Figure 2.5 summaries the list of KM focus areas of the police forces in different jurisdictions that were identified in earlier paragraphs. It should be noted that the lack of an 'X' does not imply that the police forces have no concern with the respective challenges, but there is an absence of evidence to support the claims otherwise. The challenges highlighted, such as organisational culture, risk of knowledge loss, knowledge collaboration and sharing and use of technology have also been cited by scholars in past research of KM conducted on police forces around the world (Griffiths *et al.*, 2016:277-279), and further reinforce the importance of these imperatives in the implementation of KM in police organisations. The commonalities highlight the similarities in the KM challenges experienced by police forces, despite their unique geographical locations and local context. Furthermore, the organisational characteristics present a distinct set of KM challenges due to the representativeness, accountability and responsiveness that are organisationally specific (Massaro *et al*., 2015:530). McEvoy *et al*. (2017:47) posit that what works in one organisation does not equate to success in another, and there is no "one size fits all" solution, particularly for the public sector because of its diverse nature, and organisations should carefully evaluate and select the most suitable factors to be exercised. Scholars (e.g. Amber *et al.*, 2018:13; Massaro *et al*., 2015:530) further cautioned public sectors from applying the KM practices meant for the private sectors to their own without appropriate modifications, as there are differences in goals and cultural practices between the public and private entities. The assessment requires a good understanding of the

dynamics of the organisation and evaluation of the most suitable factors to be considered for implementation.

KM Focus Areas	AFP	DPF	HKPF	UKP	SPF
Identify, capture and disseminate tacit and explicit knowledge		X	X		X
Cultivating a favourable organisational culture		X	X	X	X
Importance of capturing and retaining of tacit and explicit knowledge assets	X		X		X
Enhancing cooperation and collaboration with internal and external stakeholders	X	X		X	X
Use of technology to support KM	X		X	X	X

Figure 2.5: Factors that Influence the Implementation of KM in Police Forces (author's own)

In the preceding paragraphs, the influencing factors of KM to be focused in this research have been identified from examining the challenges experienced by the SPF and other police forces and how these factors are expected to address the said challenges. In the following sections, these influencing factors will be examined in detail in the current literature, which would lay the foundation for the investigation of these factors on the performance of KM in the SPF for this research.

2.6.1 Identification and Management of Knowledge

"How an organisation defines and describes its knowledge assets as a source of organisational advantage will shape its knowledge management journey" (Tan & Rao, 2013:48). Knowledge, if valued as an asset, will reap benefits for an organisation (Mavodza & Ngulube, 2012:1), including the possibility of immediate results from better use of knowledge, long-term survivability of the organisation (Wiig, 1995:9), and an increase in the perceived financial worth of the organisation (U.S. Department of the Navy, 2001:7). Gamble and Blackwell (2001:13) highlight that "if you are not managing your 'people and ideas' asset, you are negligent in managing the core of your business".

The value of knowledge and its importance as a corporate asset is shared by Wiig (1995:5) as he emphasises the need for management to value and manage knowledge not just as another commodity, but as an asset to the organisation. He highlights that knowledge in the form of know-how, expertise and technology have not been considered explicitly as an asset (ibid:5); despite this, knowledge has been commonly referred to as a corporate 'asset' (Carrillo *et al.*, 2003:1). The disparity can be explained in the way assets are understood and referred to as physical entities, whereas knowledge is intangible and often residing on people which makes it a challenge to quantify and measure.

To explicitly acknowledge knowledge as an organisational asset requires the management to understand how to manage and invest in knowledge with the same level of care as the tangible assets (Davenport & Prusak, 1998:12). Knowledge assets cannot be traded and can only be built in-house as they are embedded in organisational processes and structures (Teece, 2000:36). The knowledge generated may lose its efficacy if it is not managed holistically. The sources of knowledge surrounding the organisation, both inside and outside, should be identified and made available (Chavez *et al.,* 2005:91). Chua and Lam (2005:12) caution that when knowledge is managed in silos, the content of the knowledge sources is fragmented, resulting in the loss of critical content that is common and spans across the functional teams. Although the challenges of managing knowledge can be mitigated by systematising the work processes and implementation of technology, KM is still primarily carried out by people, who apply their subjective interpretations and behaviours when working with knowledge.

Policing is an integrated solution that comprises of various functions working together, with the different departments dependent on each other for input and information (Sanders & Henderson, 2013:253). It is difficult to define what is 'important' and 'necessary' as different users have varying perspectives on work practices and information requirements (ibid:253). In other words, 'subjective interpretation' of information is determining the type of information to be captured (ibid:254). The conclusion is consistent with the findings that the

perspective of KM differs among the user groups, which leads to different focal interests and practices (Swan & Scarbrough, 2002:13). Therefore, there is a dislocation in the perspectives of the users as the details are captured based on what the creator feels to be important, but this may not be regarded to be true by those who need the information. This observation supports the proposition highlighted in Section 2.5.1, which suggests that people tend to focus only on issues dear to them, and the people may have intentionally or unknowingly left out details about issues they are not directly involved with, which may result in the incomplete capture of knowledge that involves multiple disciplines.

Technological solutions are designed to standardise work processes, however, there are still 'subjective elements' that determine the quality of information to be recorded (Sanders & Henderson, 2013:254). To overcome subjective interpretation, reviews are often put in place to approve the reports (ibid:254). While Sanders and Henderson (2013) claim that the success of the review process is constrained by the resourcing issue (ibid:254), it may be useful to examine the issue from the angle of effectiveness: is the review process that is also performed by people using their interpretations actually useful, when these are often conducted without clear and specific guidelines on what to look out for other than the generic instruction 'to make sure all the necessary details are captured'?

The overwhelming wealth of data and information collected is an emerging challenge for organisations (Hughes & Jackson, 2004:66). The widespread use of surveillance systems as a result of intelligence-led policing has led to the demand for more data rather than better quality data or data analysis (Sheptycki, 2004:316). "We are drowning in a sea of information and starving for knowledge" (John Naisbitt, 1982 as cited by Tiwana, 1999:384). The ease of access to technology has made it readily available and convenient to install sensors and collect data and information from anyone and anywhere, but the capability and capacity to distillate the collected data into useful knowledge has not caught up with the progress of the former. Information collected is unusable until it has been processed (Brodeur & Dupont, 2006:17). This is because knowledge cannot be observed directly, and the knowledge creation process requires the actions of the knowledge agents (Boisot, 1998:12; Bhatt, 2001:68). The findings of Hughes and

Jackson (2004:66) reveal that although police forces have increased their capacity to store data, they are straining their capability to process and analyse the data, which has impacted on the quality of the outputs. A limitation of information technology (IT) systems is the inability to make further sense beyond turning data into information (Bhatt, 2001:73). As a result, there is severe underutilisation of data which leads to the databases being 'dustbins of data' rather than being harnessed for policing needs (Chavez *et al.*, 2005:92). Sheptycki (2004:316) attributes the deficiency in processing and analysing information to a shortage of human resources and the demand for the staff to multitask instead of focusing on their primary duties.

It has been established that it is not the accuracy or the quantity of information that offers the strategic advantage to an organisation, but the interpretation of such information into useful knowledge that makes the difference (Sutcliffe & Weber, 2003:12). This proposition seems to oppose the conventional thinking that the more information that can be captured and stored, the more beneficial it is to the organisation. It also contradicts the move towards the use of information systems to overcome the limitation of information storage in the past, as too much information to be stored is now becoming a liability rather than an asset. This argument recalls to mind the fundamental difference between data, information and knowledge as discussed in Section 2.2 – the value of knowledge lies in the insights derived from its interpretation.

Much effort and investment have been put into the installation of sensors and storage of the data and information collected in the SPF. For instance, more than 70,000 cameras were installed around Singapore since 2012 under the police camera (PolCam) project, and more are expected to be added in the next few years (CNA, 2018). However, it is questionable if the corresponding capabilities in analysing and processing the details have expanded at the same rate, as technological solutions such as video analytics can assist but may not be ready to replace the need for human intervention totally in the near future. Is our current state a result of too much available information, or have we overestimated our cognitive ability and capacity to process information? Despite the use of software and data analytics gaining momentum in recent years, it can only substitute the

need for human analysis to a limited extent. The software can aid in organising and examining data, but cannot by itself make any kind of judgement (King, 2004:263). The actual interpretation and analysis of the available data and information will still have to be carried out by the officers themselves, through the exercise of their experience and knowledge in this specialised field, which cannot be effectively coded into software. Despite this, it may be argued that human analysis is subject to interpretations and biases and the output is not as subjective as when compared to machine output. The organisation must recognise and address the gap to realise the potential of its investments into technology.

As the volume of knowledge and information grows in an organisation, it is no longer realistic and efficient for workers to go through heaps of knowledge documents to retrieve what they need. The use of taxonomy (e.g. metadata, search engine query logs) to provide a systematic and dynamic mechanism for classification and categorisation of knowledge is crucial, which will improve the efficiency of knowledge retrieval and sharing (Tan & Rao, 2013:140). This is an important aspect; otherwise, valuable knowledge will remain hidden and unnoticed (Chua & Lam, 2005:12). While information systems have been developed and widely used to assist in the management of information, the application is limited as it cannot generate new insights from the data it manages (Hughes & Jackson, 2004:66). Therefore, the ability to select and extract useful knowledge from the compilation of data and information is becoming increasingly important. However, the applicability of machine learning in police forces may have only achieved limited success, as legislative issues are becoming increasingly complex and important details may be undetected without examining the context. It will be simplistic to assume that the modus operandi of the crimes committed will repeat itself such that it can be effectively coded; the complexity increases when language and localised practices are taken into consideration. There is a need to recognise that there is still a limit to what machines can do, and the focus should be on the development of people to equip them with the cognitive skills necessary to analyse the knowledge and information presented to generate new knowledge.

It is observed that although there is awareness of the importance of KM in the police forces, there is no existing KM strategy or policy adopted that is synchronised and comprehensive (Seba & Rowley, 2010:622; Abrahamson & Goodman-Delahunty, 2014:1). This is due to a lack of a clear strategy for implementation as a result of the size of the organisation and the differing views of what KM is about by the various departments, which resulted in a lack of coordination and limited benchmarking available for reference (Seba & Rowley, 2010:622). Furthermore, the lack of a well-accepted body of knowledge to set out a defined set of standards and processes further aggravates this problem (Lahneman, 2004:622). Although the scope and definitions of KM are wide-ranging and benchmarking against counterparts may be limited, these should not be the reasons for failure to adopt KM in the organisation. This is because KM has been recognised to be an important tool to support the implementation of the initiatives to address the organisational challenges (see Section 2.6). Unlike the other management strategies, the implementation of KM practices for an organisation is expected to be customised according to the local context, and further refinements are expected at the department levels according to the nature of the functions to be performed.

As can be seen, the management of knowledge plays an essential role in the organisational pursuit of KM. The identification of knowledge sources across the various disciplines is an important step, and it gets more challenging for larger organisations. The capturing of knowledge is another major challenge: the structure of the content, the relevancy of content to the users and the context of the application need to be targeted and defined with clarity. It has also been established that the accuracy and usefulness of information are more important than its volume. With a large volume of content, the ability to filter and locate the relevant details is crucial, as anything that cannot be used is meaningless.

The discussion on the influencing factors so far have established that the implementation of KM is closely associated with the organisational culture and practices; the ability to identify and manage knowledge is linked to the human factor. Therefore, there is a need to first examine the ethos of the organisation to identify the underlying problems that contributed to the experienced phenomenon,

before the selection and deployment of the appropriate tools. In the following section, the implications of the challenges associated with organisational culture would be examined.

2.6.2 Organisational Culture

Cultural issues have made sizeable inroads into the KM domains. As a result, many studies have been conducted on the topic of culture (e.g. Wiig (1995), Alavi & Leidner (2001), Cong & Pandya (2003), Khalifa & Liu (2003), Oliver *et al.*, (2003), Chua & Lam (2005), Ajmal *et al.* (2010), Ahmady *et al*. (2016), ALMuhairi (2016)). Its popularity as a research subject suggests that it is not merely a topic of interest to many, but a reflection of the complexity and distinctiveness that differs with every organisation.

Organisational culture can be defined as a set of shared values, opinions, and behaviours that were developed when members of an organisation interact with one another and the surroundings, which determine how the organisation behaves and reacts (Glomseth *et al.,* 2007:99; Gottschalk, 2007:444). Past literature (e.g. DeLong & Fahey, 2000:113; Rai, 2011:779) have recognised organisational culture as the key resource to ensure sustainability in organisational practices, and the primary driver to foster the compliance of other management practices (Oh & Han, 2020:2). The ethos establishes behavioural norms and expectations that direct behaviours in the absence of a law or explicit instructions (Ahmady *et al*., 2016:388). For instance, ethics and legislative requirements are typically hard-coded into written guidelines to ensure strict compliance, whereas the practice of KM is usually left to the discretion of the staff. Consequently, organisational culture becomes the informal tool in setting the expectations and norms in a social context to encourage and moderate the continuous performance of KM practices. Culture can be understood as generative mechanisms that are unseen or not apparent, as these forces "may be possessed unexercised, exercised unrealized, and realised unperceived (or undetected) by men" (Bhaskar, 2008:175); culture is therefore an intransitive entity (ibid:12). This is consistent with Chua and Lam's (2005:12) suggestion that culture comprises the softer aspects of human and

organisational behaviour. Therefore, organisational culture and KM initiatives must complement each other to achieve KM efficiency.

Organisational culture plays a part in influencing the role of human resource management in supporting the performance of KM (Patil & Kant, 2012:322). This research focuses on the 'knowledge culture' (or KM culture), advocated as a specific branch of organisational culture, which describes the involvement of staff in knowledge activities (Allameh *et al*., 2011:1225). Alavi *et al.* (2005:193) conclude that KM processes are heavily influenced by the embedded social settings and interactions within the organisations in the form of organisational culture. The phenomenon can be explained by the proposition that the significant generative mechanisms (of culture) do not exist on the surface but in the deeper level of reality (Bhaskar, 2008:217). Past research (Standing & Benson (2000); Syed-Ikhsan & Rowland (2004); Seba & Rowley (2010); Seba *et al*. (2012); Ahmady *et al*. (2016); McEvoy *et al*. (2019)) have established a functional relationship between organisational culture and knowledge sharing, with the culture of the organisation being the key to the success of KM initiatives. On the other hand, scholars (e.g. DeLong & Fahey, 2000:113) have highlighted that culture can also be the major barrier to create and leverage knowledge; organisations experienced difficulty to articulate the culture-knowledge relationship into action and many have failed to achieve their KM objectives, leading to disenchantment among the management about the practicability of practising KM to enhance organisation knowledge (ibid:113). The attempt to reduce the understanding of the reality into empirical details constrained by people's limited knowledge results in 'epistemic fallacy' (Bhaskar, 2008:5). The assumption ignores the existence of intransitive elements that are independent of their identification, and confusing 'what is' with 'what we take it to be' as there is a limitation on how people can construe reality (Archer, 1998:195). It can, therefore, be postulated that despite the recognition of culture to be an important driver for KM by most organisations, cultivating the desired KM culture proves to be more difficult than they have imagined. This is because of the difficulty to shape a subculture that is independent of the influence of the current organisational culture. If the elements (e.g. values, norms, practices (ibid:116)) of the current organisational culture are not aligned with the desired KM culture, it

will be contradicting and difficult for the staff to adapt and adjust their behaviour under different circumstances. To achieve the objective of cultivating the KM culture, there is a need to first reshape the organisational culture, which is going to be even more challenging.

Lin (2007:136) postulated that knowledge sharing is a form of social interaction culture in an organisation that can be shaped by changing staff behaviour and attitude. This is because social structures are a result of the previous social interactions by people in the past, and how the people respond now will shape the social structures for the future (Lindley & Lotz-Sisitka, 2019:12). Therefore, it can be posited that the knowledge sharing behaviour is an exhibited action resulting from the dynamics of the organisational KM culture. Lin (2007:136) emphasised that organisations can manage their knowledge resources effectively only when the staff are willing to share knowledge with each another, and it is crucial to identify the factors that promote or impede knowledge sharing behaviours. These factors have been categorised into implicit (trust, behaviour, knowledge efficacy) and extrinsic (expected rewards, reciprocal benefits, political) factors to facilitate subsequent discussions.

Trust is found to influence the human behavioural aspect of the perception of knowledge sharing (Seba *et al*., 2012:379). This is because trust encourages openness (Oliver *et al*., 2003:142; Seyedyousefi *et al.,* 2016:414). Trust has a direct bearing on knowledge sharing and people tend to share when the trust level is high (Standing & Benson (2000); Cong & Pandya (2003); Chua & Lam (2005); Fathi *et al.* (2011); Tan & Rao (2013); Seyedyousefi *et al.* (2016)). While trust is highly desired in the organisation, it is difficult to establish and it takes continued interaction and shared experiences to reach a requisite level comfortable for knowledge sharing (Tan & Rao, 2013:109). When a positive relationship is established, people are also more willing to share knowledge (Han & Pashouwers, 2018:47), or with the group they identify with a sense of belonging; in particular, the 'in-groups' as compared to the 'out-groups' (Schutte & Barkhuizen, 2015:135). Trust is not built overnight but only strengthens over time as the parties engage one another. However, the frequent staff turnover and internal job rotations result in the job holders leaving their positions; the process needs to start

over again and may pose a challenge to the building up of the needed relationship. Therefore, the high dependency of KM on the human relationship can be perceived as a risk, as the process is unreliable due to the commonality of manpower movements and changes. Yet, are there ways to manage and the stabilise the human relationships to mitigate the risks, such that the KM process can be more objective and dependable?

Applying the concepts of trust and knowledge sharing to the policing context, Brodeur and Dupont (2006:17) posit that "the idea that all policing organizations are equally entitled to share classified information on the basis that they are all part of the police apparatus is a myth". However, Sheptycki (2004:312) argues that the diversity of departments in the police sector are not functioning as a unified body. The structuring of the policing units into the functional units may have served its purpose to achieve operational efficiency and effectiveness, but an unintended outcome is the creation of silos of knowledge. Tan and Al-Hawamdeh (2001:318) claim that the compartmentalised structure of an organisation makes it difficult for knowledge and information to be shared across units and departments. Furthermore, personal, organisational values and bias are impeding the effective and efficient information and knowledge among the police departments (Abrahamson & Goodman-Delahunty, 2014:1). Many officers are not open to the notion of knowledge sharing and continue to practice knowledge hoarding, despite being encouraged to change (Tan & Al-Hawamdeh (2001); Liebowitz & Chen (2003); Sheptycki (2004)). Eventually, knowledge ends up isolated within an individual, unit, or segment of the organisation (Sheptycki, 2004:321).

There is also the traditional mindset of the need to preserve the security and confidentiality of information. Moreover, sharing is only on a need-to-know basis, which further aggravates the problem (Tan & Al-Hawamdeh, 2001:318). While scholars have identified possible reasons for a lack of knowledge exchange, it can be argued that the information handled in the policing context can be sensitive, restricted, and not intended for mass knowledge. The challenge will be how to strike a balance between the need to maintain confidentiality and the appropriate information to be shared, to dismiss the criticism of a lack of trust between

departments. To overcome this operational blindness, the boundary-less demarcation between departments is encouraged to alter the management of information from the emphasis of control towards the free-flow of information across departments (Tan & Rao, 2013:95). Another strategy is through centralisation of responsibilities, which forced the various nodes to interact through the hub and spoke structure (Brodeur & Dupont, 2006:21).

Knowledge sharing results in more know-what, know-how, and know-why (Glomseth *et al.,* 2007:106). "The essence of managing knowledge is concerned with deciding with whom to share, what is to be shared, how it is to be shared, and ultimately sharing and using it" (Cong & Pandya, 2003:27). This suggests that the behaviour of the staff is a major factor that determines the success of KM in an organisation. The distinction between the staff behavioural from the structural aspect shows the applicability of analytical dualism to examine the interaction between both elements in the organisation, since they are interrelated but not mutually constitutive and each of them possesses its own emergent properties (Archer, 1995:133). Previous literature has posited that knowledge sharing cannot be forced or coerced (Han & Pashouwers, 2018:46). Furthermore, the willingness to share knowledge is fundamentally shaped by the knowledge sharing culture in the organisation (Seba *et al*., 2012:372). The phenomenon can be explained by the proposition that the structure pre-dates the actions that transform it (Archer, 1995:76), as social structure encourages the desired actions to the agents. Organisations seeking to institutionalise knowledge sharing behaviours need to focus on the organisational culture as it fosters work relationships (Han & Pashouwers, 2018:46). There is also a need to change the perspective from a 'we-they' relationship, which often results in a win-lose situation, into an 'us' relationship with a win-win outcome (Tan & Rao, 2013:96). Therefore, organisational culture is a critical factor in promoting knowledge sharing behaviour among employees (DeLong & Fahey, 2000:126).

In the Theory of Reasoned Action, Fishbein and Ajzen (1975:16) posit that a person's actual behaviour depends on their intention to perform that behaviour, which is influenced by their attitude as a result of the person's beliefs of the outcomes of performing the behaviour, and the subjective norms (defined as the

social pressure perceived by the person of whether or not to perform the behaviour) towards the behaviour (see Figure 2.6). Applied to the context of knowledge sharing, the determinants of the decision to share knowledge is a function of the person's attitude (internal) and the pressure to conform to the social norms (external). Instead of assuming the causal powers of the current social properties, people have the reflexivity and exercise their autonomy to respond to the social circumstances they are subjected within (Archer, 2007:10). Liker and Sindi (1997:150) emphasise that these factors should not be studied in isolation but examined beyond their boundaries to achieve a more conclusive study of human behaviours.

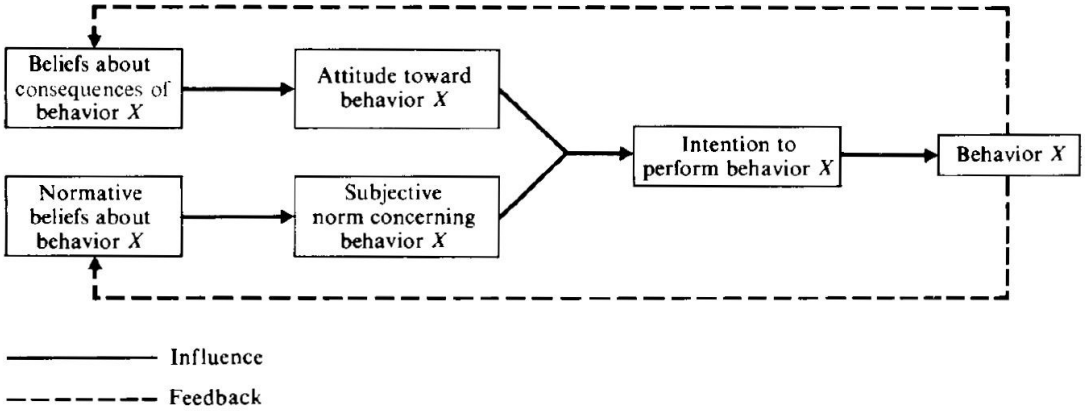


Figure 2.6: Theory of Reasoned Action (Fishbein & Ajzen, 1975:16)

Ardichvili *et al.* (2003:69) find out that the perception of the ownership of knowledge will influence one's willingness to share knowledge: if the knowledge held is perceived to be a public good, there is a higher propensity for knowledge exchange as it is motivated by moral obligation and community interest (ibid:69). Otherwise, the knowledge-hoarding mentality will take place, as knowledge is regarded to be a personal belonging which is less likely to be shared. Standing and Benson (2000:1110) posit that the effective way towards a higher level of KM performance and sharing requires a culture shift of the organisation to foster an environment where knowledge contributes to the collective good; the staff need to realise that everyone plays an important role to help the organisation accumulate and grow its knowledge.

Studies have also shown that, for knowledge sharing to happen, people need to recognise that their contribution to knowledge is for the overall good of the organisation rather than selfishly focusing only on their agenda (Alavi & Leidner, 2001; Sheptycki, 2004; ALMuhairi, 2016). Knowledge sharing will be impossible if the staff is unwilling to share knowledge (Currie & Kerrin (2003); Chua & Lam (2005); Ahmady *et al*. (2016)). The behaviour is shaped when employees are willing to share knowledge only when they feel that it is in their interest to do so (Seba *et al*., 2012:372). One observation made about knowledge hoarding is that it makes people feel valued by the organisation (Standing & Benson, 2000:1108; Olarinoye *et al*., 2016:1); by giving away their expertise through knowledge sharing, people feel they are losing their competitive edge and are less likely to be promoted or rewarded (Standing & Benson (2000); Liebowitz & Chen (2003); Han & Pashouwers (2018)). Others may feel that the level of intensified competition between individuals, and the appraisal of performance on an individual basis, has worked against the sharing of knowledge (Standing & Benson, 2000:1108; Han & Pashouwers, 2018:47). Should the staff feel that their career progression depends on the knowledge they generated and not the extent to which they help others (Alavi & Leidner, 2001:127), they may even refuse to share as they treat knowledge as a tangible asset that may be lost once shared (DeLong & Fahey, 2000:118; Syed-Ikhsan & Rowland, 2004:95). It is not difficult to comprehend the behaviour of staff and their rationale for engaging in the self-preservation mode. Staff performance is often assessed by the managers based on individual accomplishments, rather than team performance (e.g. knowledge shared with other colleagues such that others can apply it to achieve the organisational goals). That being said, how can staff appraisal be practised such that it is not played as a zero-sum game while capable of enhancing the KM culture, and in-turn the organisational performance?

Extrinsic motivation factors can also affect the willingness to practice KM. The motivation to share knowledge can be encouraged through tangible means, with rewards and incentives perceived to be the most direct and effective (Davenport & Prusak (1998); OECD (2003); Lin (2007); Ajmal *et al.* (2010)). This contrasts with the observation by Kwok and Gao (2005:49), that extrinsic motivation in the form of rewards or punishments does not affect people's attitude towards

knowledge sharing behaviour, as they found that people share knowledge primarily out of goodwill or personal interest. The study by Lin (2007:143) corroborates with that of Kwok and Gao (2005:49) that expected organisational rewards did not significantly influence employees' attitude and behaviour towards knowledge sharing. The effectiveness of tangible rewards is questionable, particularly in government organisations where the resources to reward are limited and knowledge sharing is not a significant consideration during staff appraisal (Liebowitz & Chen, 2003:422). Also, is the offering of incentives and rewards to motivate positive behaviour sustainable in the long run? Do the staff feel that the appreciation is worthy of their efforts, such that they are motivated to contribute towards knowledge sharing? Lin's (2007:145) study found out that organisational rewards may provide temporary incentives for knowledge sharing but not a fundamental force to shape the desired knowledge sharing behaviours. There is, however, a need to exercise caution against reading too much into the empirical evidence of the effectiveness of using incentives to promote the desired KM behaviour. This is because what can be established may only be a fraction of the reality (Fletcher, 2017:4), which could be insufficient to interpret as the real motivating factors for knowledge sharing. Therefore, the understanding of the context to be studied is crucial and the factors to encourage the desired behaviour should be calibrated progressively according to perceived effectiveness.

A proposition mentioned by Syed-Ikhsan and Rowland (2004:96) is that people will share knowledge if there is a mutual benefit to be derived. Stoddart (2019:69) and Han and Pashouwers (2018:47) concluded that the willingness to share expertise and knowledge with others will be more prevalent if an atmosphere of reciprocity was the de facto way of operation. This seems to suggest that knowledge sharing is not 'free', as the party sharing the knowledge is expecting something in return, although Han and Pashouwers (2018:47) emphasise that the likelihood of knowledge sharing depends on the organisational culture in which sharing occurs. The knowledge sharing mechanism breaks down when one party cannot provide what the other is expecting and neither benefits from this stalemate. This is consistent with the earlier discussion that knowledge sharing is motivated with rewards, but it also challenges the belief that knowledge sharing can be self-motivated and takes place freely through trust, positive relationships,

and self-efficacy without expecting anything in return. Here, knowledge is no longer about sharing; rather, it is perceived as barter trading. As the dynamics of work become more intertwined and complicated, there is an increasing dependency on one another for work to be done. The lookout for mutual benefit in knowledge sharing may be a solution if the parties need one another, but it may not be viable if the level of dependency is not common or balanced.

Despite the effort to develop trust, relationships, and encouragement with motivation factors, the success of KM may be affected if it is used as an object for political manoeuvring within the organisation to gain control and authority (Chua & Lam, 2005:12). For instance, some are not willing to share knowledge because of the self-preservation mentality (Liebowitz & Chen, 2003:422), considering that knowledge is regarded as an important power resource (Hislop (2003); Liebowitz & Chen (2003); Sheptycki (2004)). Also, conflict and suspicion develop in the team when the implementation of KM initiative is politically motivated to establish power and control for oneself in the organisation (Chua & Lam, 2005:10). This leads to relationship conflicts, where the need for knowledge by one party is not fulfilled by the other party that possesses the required knowledge (Rechberg & Syed, 2013:832). The disparity in behaviour can be attributed to the power struggle for knowledge and the lack of recognition for sharing of knowledge (ibid:832). SPF is not immune to the resistance towards knowledge sharing. Knowledge hoarding may still be practised in the organisation, as the possession of knowledge is perceived by some to be the source of power and an important element for one's progression in the organisation. Another explanation of the behaviour is the uncertainty of the information that could be shared, due to the need to protect the confidentiality of information. Unfortunately, the reluctance to share knowledge denies others the opportunity to learn and synthesise new knowledge. This requires a paradigm shift in the perspective and cultural change of its people towards a more effective adaption of KM.

Besides the individual motivating factors that the relationship with the KM culture, it is also necessary to examine the phenomenon at the organisational level. While the concept of information sharing is straightforward, it is a complicated matter within the policing environment, because "even though police departments love

to say that they like to share information, what that means is that I like to get your information and not necessarily give you mine" (Sanders & Henderson, 2013:255). These impediments need to be addressed, and top management must provide guidance and support to encourage the elements of learning and knowledge sharing at all levels of the organisation (Tan & Rao, 2013:97). For instance, the Police Technology Department of the SPF organise yearly events (e.g. KM Day) and hold regular meetings to create a positive culture in knowledge sharing through the highlighting of exemplary KM efforts by its staff and giving out of rewards and incentives (e.g. Quarterly KM Role Model award, 'Pat on the Back' award) (ibid:106). In contrast, Chavez *et al*. (2005:98) conclude that when KM is treated more like an 'event' than an organisational routine, its effectiveness is reduced; events are avenues to raise awareness for a cause or the recognition of selected success stories. The celebration of the selected few does not imply that the entire organisation has achieved the same level of success. Furthermore, the primary purpose of KM is to facilitate the management of knowledge in the long term, and the effect of KM may not be observable within a short time. Instead of focusing on the short-term outcomes, the focus should be on equipping the staff with the necessary skill set and instilling them with the correct mindset towards KM in the long run.

It will be a challenge to promote knowledge sharing if the act of accessing other's knowledge is perceived to be a sign of inadequacy (Chua & Lam, 2005:12). Despite the set up of the central repository of knowledge with the purpose to encourage knowledge sharing and learning so that mistakes will not be repeated, it may lead to resistance from the contributors as they feel that contributing to it is a signal of their inability to get things right; the recipients are not willing to access it, as they perceive the act to be exposing their weakness for the lack of knowledge (ibid:9). Does the organisation acknowledge that no single person possesses all the knowledge and therefore advocates that learning from one another is not a sign of weakness, but a sign of the desire to improve oneself? Although knowledge sharing through cooperative behaviours is encouraged, it may also result in social dilemmas such as leeching behaviours and the overuse of shared resources (Tan & Rao, 2013:26).

Organisations need to be aware that implementing KM initiatives is a significant change in the business processes, and those with the culture of not embracing change will be faced with strong reluctance from the people (ALMuhairi, 2016:96). Therefore, resistance to change is an obstacle that limits the adoption of KM in an organisation (OECD, 2003:2; ALMuhairi, 2016:15). One explanation for this is, "organisations find it difficult to unlearn their past - to question inherited assumptions and beliefs, to reject existing practices as the only viable alternatives" (Choo, 1996:330). This suggests that learning and unlearning are equally important (Tan & Rao, 2013:109). The reluctance to change needs to be eradicated, and this requires intervention from top management to change the way people think and work (Cong & Pandya, 2003:30; UNPAN, 2003:8). In particular, the need exists to establish the knowledge-sharing culture (OECD (2003); UNPAN (2003); Schutte & Barkhuizen (2015)). To achieve the desired outcome, transformational leaders as change agents are required to take the lead (Sayyadi, 2019:35). This is because such leaders have the competency to effectively implement organisational strategies to influence and enable KM which enhances organisational performance (ibid:35).

Buy-in at the organisational level is necessary for the effective implementation of KM. The top management has a vital role to play, as they take the lead by setting the essentials of KM into the strategic plans, directions, and processes (Stankosky (2005); Schutte & Barkhuizen (2015); Okere (2017)). Chua and Lam (2005:12) highlight their observation that KM initiatives are unlikely to be followed through if there is a lack of management commitment. A supportive workplace culture that encourages the practice of KM should be provided by the managers (DeLong & Fahey, 2000:117). Also, leadership from managers should serve as an example to change mind-sets and encourage knowledge sharing, collaboration and communication (Stoddart, 2019:69). Similarly, employee commitment is equally important as it affects the loyalty level and behavioural attitudes towards the willingness to share knowledge (Hislop, 2003:198).

KM is not only about the sharing of best practices from success stories, but it is also about learning from failures. Nonetheless, far too little attention has been paid to failure stories in comparison to the former (Chua & Lam, 2005:7; Griffiths *et*

al., 2016:276). An explanation can be attributed to the difficulty to disengage the process of learning from the mistakes and learning from failures (Sensky, 2002:391). This selective mode of learning is unhealthy, as the deliberate ignorance or repression towards failure will lose the opportunity to learn from past mistakes (Chua & Lam, 2005:7). The lessons learnt, whether success stories or erroneous practices are an investment of time and money of which the organisation already knows of (Tan & Rao, 2013:32). Chua and Lam (2005:7) recognise that the identities of the organisations involved in failure stories are rarely revealed, which contrasts with the success stories, where the organisations are prominently highlighted. The observation suggests that "failure remains an organizational taboo even though corporate values such as organizational learning and active experimentation are increasingly espoused (ibid:7)". Is the organisation perceived to be so success-oriented that it is only willing to celebrate success but condemn failures? The receptiveness of learning from mistakes, especially those committed within the organisation, depends on the organisational culture; failure is still commonly perceived to be a taboo, and the deliberate concealing of such lessons learnt is likely to result in the occurrence of a similar mistake.

This change in perspective is effective only if it is from the top management, as the levels below would usually mirror the viewpoint of the leaders. Therefore, the management needs to be more tolerant towards mistakes and adopt the 'no-blame' culture to encourage learning and application of knowledge within the organisation (Sensky, 2002:392; Tan & Rao, 2013:93). The organisational setting should be conducive to encourage experimenting with the acknowledgement that success is not the only outcome, such that members can be open-minded to learn from mistakes as well (Tan & Rao, 2013:93). Only when there is no fear of making mistakes, will buy-in and an increase in user involvement be achieved for successful KM.

The findings from the literature indicate that culture is the cornerstone of knowledge sharing in an organisation. Organisational culture is a crucial determinant of how the workers perceive and exhibit knowledge sharing behaviour in the workplace. At the individual level, personal perspectives, attitude, and politics may affect a person's willingness to share knowledge. The ability of

people to exercise their reflexivity and to decide how they want to respond is evident that people are not entailed by routine or habitual action (Archer, 2007:3). While incentives seem to be a motivating factor for knowledge sharing, its effectiveness in the long term is debatable. At the organisational level, knowledge sharing between stakeholders and inter-department is heavily dependent on the organisational culture. Presence of politics and the perspective of inadequacy may dampen the effectiveness of KM.

The evidence presented in this section also suggests that support and acceptance from all levels of the organisation are imperative for the successful implementation of KM to be achieved. Changes are expected in the process; the management needs to take an active role to encourage buy-in from its staff, overcome the resistance to change, and adopt the no-blame culture for experiential learning and learning from previous mistakes to be encouraged and the taboo removed. The implication for practice is that management interventions may be necessary to change the organisational structure and break down the 'invisible walls' that inhibit knowledge sharing.

Abrahamson and Goodman-Delahunty (2014:1) emphasise that unfavourable KM culture is only one of the factors that will impede information and knowledge sharing within and across police units. Other aspects such as ineffective structures, technologies, policies and practices within the police departments will further erode the effectiveness of KM, and these will be examined in subsequent sections.

2.6.3 Human Resource Management

Knowledge sharing in an organisation involves the capturing and organising of knowledge that resides in the organisation and making the knowledge available to others (Lin, 2007:136). The process also offers the organisation the potential for increased productivity and retention of intellectual knowledge capital even after employees leave the organisation (ibid:137). While the organisation has access to the skills, knowledge and expertise of its employees, it needs to have the human expertise to manage the KM initiatives (Chen & Huang, 2009:105), and human resource management plays a vital role in ensuring that the governing body is

equipped with such competency (Aziri *et al.*, 2013:1037). Therefore, the use of human resource management can build up the social capital of the organisation (Tan & Rao, 2013:98). It is further established that human resource management practices can improve the sharing of knowledge in a functionality-based organisation (Currie & Kerrin, 2003:1028). Managers can utilise human resource management practices including staffing, employee participation, performance evaluation and compensation to cultivate a better level of KM capabilities as it is expected to result in favourable performance outcomes (Chen & Huang, 2009:112; Sánchez *et al*., 2015:146). Despite the awareness of the importance of human resource management and the availability of such practices towards KM, organisations may only realise limited success from these quick fixes as the other 'affecting factors' (see Section 2.6), such as the KM culture, could have eroded the effectiveness. Therefore, human resource management can be seen as a practice-based phenomenon that is culturally embedded in particular times and spaces (Taylor, 2006:479).

Globalisation has led to organisations experiencing an increase in workforce diversity and mobility (Tan & Rao, 2013:25). The desire to look for better job opportunities has resulted in high staff mobility and turnover (Hafeez & Abdelmeguid, 2003:153; Aziri *et al.*, 2013:1037). It is a constant threat to organisations as they are finding it increasingly difficult to retain their core staff and critical business knowledge, which causes KM and retention to be an ever-challenging task (Hafeez & Abdelmeguid, 2003:153; Tan & Rao, 2013:25). This is because corporate knowledge erodes when employees leave the organisation (Hafeez & Abdelmeguid (2003); Hislop (2003); Aburawi & Hafeez (2009); Tan & Rao (2013)), taking away critical knowledge with them in their minds; the higher the rate of turnover, the faster the depletion of the knowledge pool (Hafeez & Abdelmeguid, 2003:153). Hislop (2003:185) sums it up succinctly: "The intention to stay/quit is as important as having positive attitudes towards knowledge sharing." Unfortunately, skills, knowledge and competencies require a considerable amount of time and resources to develop, which cannot be bought or replenished instantly (Hafeez & Abdelmeguid, 2003:155; Aburawi & Hafeez, 2009:1109). The training of police officers is one such example, as the acquisition

of knowledge is not limited to the training phase, but continues throughout the officers' service in the organisation.

Organisational memory is needed to prevent the loss of organisational knowledge as a result of natural attrition, which can impact the organisation's performance (Aydin & Dube, 2018:404). The situation has developed into a dire state that forces organisations to invest their resources heavily in KM (Baladi, 1999:21). The government agencies are not spared as they are also dealing with excessive attrition and retirement, and capturing the knowledge of experienced and departing employees is of strategic importance (Edge, 2005:45). In the short term, management needs to take human resource actions through recruitment and training employees to maintain the minimum knowledge level for the proper functioning of business operations (Hafeez & Abdelmeguid, 2003:155). In the long term, it is necessary to develop strategic knowledge and competencies for competitiveness and sustainability of the business (ibid:155). Therefore, human resource planning has a critical role to play by responding with measures to counteract the demand for talent as a result of increased competition in the global market (Aburawi & Hafeez, 2009:1118).

Job rotation is a part of the human resource management practices in some organisations. Such an internal practice of staff movement has been favoured by specific job functions (e.g. accounting) as it is expected to strengthen supervision and mitigate dishonest behaviour (Zhao, 2009:91). The increase in staff mobility shortens the tenure of the staff in a position which reduces the build-up of a protectionist attitude that hinders collaboration and knowledge transfer (Stoddart, 2019:69). Also, it offers opportunities for staff exposure to different business procedures and business content, thereby raising their skill set (Zhao, 2009:92). By taking up different roles through regular job rotations, it is anticipated that staff will gain a better appreciation of the general business processes of the organisation, which improves the quality of their decision making with their judgement based on a more holistic viewpoint (ibid:92). Furthermore, regular job rotation is also expected to establish better relationships with co-workers and improve the networking of individuals (ibid:93). Although there are strengths in such a practice, it should be approached with care, nonetheless; otherwise, it could

have a detrimental effect on the implementation of KM in the organisation (ibid: 93). Organisational knowledge can be lost from staff turnovers, which is beyond the control of the human resource function. On the other hand, the deliberate redeployment of the staff around the organisation through job rotations may lead to systematic knowledge loss, especially if the knowledge continuity process is not managed carefully.

One of the key drivers of KM is to battle the risks of knowledge loss, which may lead to mistakes being repeated (Sutcliffe & Weber, 2003:42). Traditionally, tacit knowledge resides in staff's minds, and this tacit knowledge is often lost when there is staff movement due to resignations or transfers (Sutcliffe & Weber, 2003:42; Lahneman, 2004:617) as there is little conscious effort to share knowledge extensively between staff and across project teams and departments (Sutcliffe & Weber, 2003:42). The challenge is complicated by the practice of mandatory job rotation in the SPF. The practice of job rotations leads to the pressing need to retain and transfer the knowledge acquired from one's tenure in a role to the successor before his/her move to another role (ibid:42). Although there are processes in place within the SPF to facilitate the handing and taking over of duties, such as a period of overlapping duties between the rotating officers, the practical constraints have limited the depth of knowledge transfer for the initiative to be effective. This is because the knowledge to be transferred is not only limited to facts and figures but a comprehensive understanding of the background and wisdom of how decisions were arrived at previously to set the context for future developments. The varying efforts put in by the officers may also impact its effectiveness. Moreover, tacit knowledge in policing is experimental, and this makes the sharing of such knowledge more difficult (Tan & Al-Hawamdeh, 2001:318).

Another point to consider is the scale of the job rotation (Zhao, 2009:93). The number of jobs to be rotated at every exercise should be controlled to ensure continuity and stability in the daily operations of the organisation, and sufficient preparation and related training should be in place to facilitate the transition (ibid:93). As job rotation involves the movement of people, the dynamics of the team is another factor for consideration (ibid:94). The harmony of the team should

be conserved with a balanced combination of workers with different characters (ibid:94). Organisational and people stability in a positive working environment are contributing factors to good KM practices (OECD, 2003:20). In the SPF, staff movements are carried out regularly and involves a sizable number of employees who have worked in a position for a couple of years. The driver for the exercise is to offer the officers opportunities to explore the different areas of policing. While the practice has achieved its human resource management's objective, its impact on the management of knowledge is unclear, as knowledge may be systematically and progressively lost in the process. The outcome will be even less favourable if the knowledge retention framework of the organisation is weak, to begin with. Bhatt (2001:70) draws particular attention to the accumulated prior knowledge that increases the ability to accrue more knowledge and makes subsequent learning easier. This could be a challenge to SPF's ability to grow knowledge as people take their knowledge with them when they leave their posts, and the only thing the incumbents leave behind is information. Knowledge is subject to interpretation, and it takes a considerable length of time for the successor to build up experience and a knowledge base before they can effectively exercise their judgement and interpretation to generate more knowledge. As policing is fast-paced and continuously changing, this poses a challenge to SPF in the long run as the growth of knowledge may be slower than if officers are staying in their posts for an extended period.

Considering the increasing security threats in this current environment, police forces are exploring the possibility of increasing their recruitment of more police officers (Hughes & Jackson, 2004:71). Whether increasing the number of police officers has a positive effect on the level of security experienced is still debatable (ibid:71) as it has been established that an increase in the number of police officers without a corresponding expansion of the knowledge creation infrastructure is going to negatively impact the KM capability of the organisation (ibid:73). For the SPF, it has taken its side by announcing, in 2016, that it would increase the recruitment of officers to address the increasing complexity and workload expected of the officers (Seow, 2016). The increase in the number of new officers is likely to impact its KM capability and effectiveness in the long term if corresponding measures are not taken to support the new initiative, as people

simply just do not become competent police officers when they sign up. The KM infrastructure needs to be complemented with knowledge sources to impart the skills and knowledge to be effective. One solution is to tap into the experience of the retiring officers and engage them as trainers to pass on their knowledge to the other officers (Chavez *et al*., 2005:55). For the SPF, a resource management strategy implemented is the establishing of the expert career track scheme to recognise officers with deep expertise in specific policing domains, thereby requiring them to mentor junior officers and attend courses to deepen their expertise (Cheong, 2016). Nevertheless, it should be recognised that identifying the knowledge sources in the organisation is only an element of KM; human resource management should ensue to cultivate the KM culture to promote the practice of KM in the organisation.

The studies presented have provided evidence that human resource management is an important pillar to advance the KM capabilities of the organisation. The human resource function serves to support the organisation by equipping it with social capital to build up its KM capabilities. Frequent staff turnover has led to challenges in retaining and growing organisational knowledge. Similarly, the internal pressure for job rotation to satisfy the aspirations of employees adds to the risk of knowledge loss and upsetting the dynamics of the organisation. The impact of such knowledge loss is more severe for police forces as their specialised knowledge is usually gained internally and the knowledge gap cannot be easily filled up through external recruitment. The lack of qualified personnel to pass on their knowledge has limited the ability of an organisation to expand its headcount without compromising its competencies. The influencing factors related to human resources need to be managed carefully to support the KM needs of the organisation.

Other than organisational culture, the identification and management of knowledge and staff movements, another area which KM is expected to support police forces in addressing its challenges is on the increasing need for innovation and collaboration with stakeholders. This focus area would be discussed in the next section.

2.6.4 Innovation and Collaboration

The ability to innovate in the private sector suggests an organisation gaining the competitive advantage as compared to its competitors; when applied in the law enforcement arena it translates to the ability of the police forces to stay ahead of the criminals. The occurrence of high-profile security-related cases around the world is a reminder that the policing environment is ever-changing and there is a need to invest into innovation to meet future challenges (Chavez *et al*., 2005:80). Innovation is not only about the end product, but it has broader implications as it involves the transformation of the organisation to facilitate the process (ibid:85).

Innovation calls for the collaboration between internal departments and partnerships with external stakeholders to overcome limitations in existing knowledge and expertise (Chavez *et al*., 2005:85). Also, innovation shapes the culture of the organisation by creating the values of openness and involvement with its stakeholders for knowledge sharing (ibid:86). Policing, as a result, will be more data-driven and orientated towards the knowledge-centric approach to target specific policing needs (ibid:86). To claim that innovation will bring about the changes mentioned above to the organisation may not be accurate as the relationship between innovation and the positive changes to the organisation is arbitrary. Furthermore, the results are not definite. Instead, it may be more appropriate to perceive innovation as a change agent that triggers or a catalyst to expedite the organisational culture transformation towards a more knowledge-centred organisation.

Globalisation has accelerated the need for KM by organisations (Prusak, 2001:1002). KM is also associated with corporate memory and intellectual capital of the organisation (Petty & Guthrie 1999, as cited by Standing & Benson, 2000:1104). The need is driven by the intensity and volume of global trade where the competition is no longer localised but globalised, and this has compelled companies to continually ask themselves to stay ahead of the competition "what do we know, who knows it, what do we not know that we should know" (Prusak, 2001:1002)? This suggests that organisations have realised the positive value of KM and business performance (Carrillo *et al.* (2003); Cong & Pandya (2003);

Ajmal *et al*. (2010); Aziri *et al.* (2013); Mavodza & Ngulube (2012)). Moving forward, organisations should progress beyond past knowledge practices and into novel ways of operating (Tan & Rao, 2013:228). The extent of knowledge novelty depends on how current issues can be addressed more effectively and efficiently or whether new ways of doing things can be developed (Bhatt, 2001:71). However, the effectiveness of the novelty of the processes may be affected by the need to protect the security and confidentiality of information, which has shaped the mindset of the staff to be more cautious towards knowledge sharing (Tan & Al-Hawamdeh, 2001:318). This kind of protectionist behaviour is likely to result in a vicious cycle of withholding information, which will affect the level of knowledge collaboration between the internal departments and with the external stakeholders. In the SPF, confidential information is prohibited to be disclosed to external parties. With the limited information that is made available to the external parties, they have difficulty identifying the root cause of the issues expected to address. Consequently, the external stakeholders may end up offering symptomatic solutions that attempt to treat the superficial problem than to solve the fundamental issue. Also, the external stakeholders may perceive the reluctance to share information by SPF as a lack of trust. The misconception may arise due to differences in culture and a lack of understanding of the nature of work between the organisations, which may impact the relationship of the intended collaboration and affect the expected outcome (see Section 2.6.2).

Criminals disregard jurisdictional boundaries and take advantage of the lack of communication across jurisdictions, which is the result of the inefficient transfer of information (Chen *et al.,* 2002:273). The concerns over privacy issues lead to the need to protect confidentiality and prevent unauthorised use of such information (Plecas *et al.,* 2011:122). As a result, law enforcement agencies do not have a complete picture as pieces of information have been withheld from the agencies that own the information (ibid:122). Also, the provision of effective and responsive public service depends on the close cooperation and timely information sharing between the law enforcement agency and its community partners (Uthmani *et al*., 2010:394; Plecas *et al.,* 2011:121). This requires the organisation to tap value from the interrelated social networks and synchronise it

as part of the entire organisational network that involves both internal and external stakeholders (Tan & Rao, 2013:228).

Scholars have emphasised the usefulness of horizontal knowledge sharing across institutional boundaries (Sheptycki, 2004:322); there is a need to harness the value of knowledge that can be derived from the bigger environment through external alliance and co-creation (Donoghue *et al*., 1999:53; Chavez *et al*., 2005:93). For instance, the signing of the Memorandum of Understanding (MOU) between the SPF and Antwerp Police Department of Belgium highlights that the police forces across boundaries recognise the need to collaborate in fighting transnational crimes and cooperate in knowledge sharing in areas such as information, capability building and training (SPF, 2019). The partnership is expected to enhance the cooperation between SPF and its international counterparts, which will break down the walls that inhibit knowledge sharing and communication between jurisdictions. However, the expression of interest to cooperate between the organisations should not be assumed that information will henceforth be exchanged freely and promptly, as there is a need to negotiate around the red-tape within the organisations, which may delay the promulgation of critical information, thereby diminishing the worthiness of the piece of information as time passes.

Another feature of KM is to innovate through collaboration with educational institutions to conduct research programmes relating to policing (Chavez *et al*., 2005:21). This approach is beneficial to both parties as the educational institutions get the opportunities for the students and academic staff to work on real issues and the police units get to receive insights and explore solutions into problems they want to solve. While this working relationship is not new to police units including the SPF, the scope of collaboration seems to be restricted to matters that are generic and supportive and not targeted into the core of policing such as crime-fighting. For instance, the MOU between SPF and Singapore Polytechnic's Technology Development Office, signed in 2013, focused on areas related to the use of materials science technology to optimise personal gear and equipment, and nutrition to enhance the well-being of the officers (SPF, 2013:27). Nevertheless, the initiatives could pave the way for more collaboration between SPF and the

educational institutions, such that SPF could leverage on the technological expertise to develop and implement cutting-edge technologies to support the core policing work in due course.

The lack of in-depth knowledge collaboration between the police force and the academics can also be ascribed to the mismatch between the police management's expectation of the direct delivery of useful knowledge and practical recommendations that are aligned with the organisational targets of the police organisation and the actual output from the academics (Lumsden & Goode, 2018:253). The proposition is also experienced in the SPF to some extent. There is the expectation from the police management that the work produced by the academics is a direct remedy to the challenges faced by the police organisation. However, the police management failed to realise that the academics are not police officers; they do not have the contextual knowledge of how the police force functions to evaluate the practical applicability of their proposed solutions. Furthermore, when limited information is being shared to the academics due to the need to protect the confidentiality of information (see Section 2.6.2), it becomes even more difficult for the academics to second-guess what are the expectations of the police counterparts. The cyclical cycle may eventually lead to a breakdown in the knowledge collaboration between both entities.

Other than the educational institutions, collaboration with external stakeholders can also be between SPF, other government agencies and the industry partners. An example of such a cooperation is Project Oracle, the development of a portable camera system with a 360-degree view and live-streaming capabilities by Ministry of Home Affairs, the Agency for Science, Technology and Research's Institute for Infocomm Research and Sony's Computer Science Lab (SPF, 2017:19). This is a step in the right direction as such collaboration is uncommon due to the sensitivity of the information that could be shared, as there is the need to uphold the confidentiality of such details. For instance, crime information that may reveal the modus operandi or lead to the identification of the individuals should not be shared. Similarly, information that may jeopardise police operations ought to be controlled from those who are not entitled to receive. Consequently, the restrictive sharing of classified information may limit the possibility to explore better ways

to prevent, detect and solve crimes. This is a decision that the police departments need to evaluate: whether the long-term benefits that can potentially be reaped in enhancing the crime-fighting capabilities of the organisation outweighs the risk of limited disclosure of information to a selected few.

A calibrated approach could be taken to leverage the expertise of academics to identify more effective and efficient ways to fight crime. A more recent collaboration between the SPF and a government agency GovTech (Government Technology Agency of Singapore) led to the creation of a new screening platform JARVIS, which can reduce the time to conduct screening across multiple police databases by 75% (GovTech, 2019). This project may seem to be no different from the other earlier collaborations, where the sharing of classified information with the external stakeholder appears to be minimal. However, it is a major step forward as there is more disclosure of the current police processes with an external party, and it could be a turning point for future collaborations that may involve the sharing of more confidential information with non-SPF partners.

To achieve effective KM at a macro-level, KM is proposed to be implemented at levels beyond the organisation (Plecas *et al.,* 2011:121). Cong and Pandya (2003:31) and Oliver *et al.* (2003:142) suggest that the availability of KM technology should be extended in all directions: upstream to the suppliers, outward to partners and downstream to the customers for an integrated KM solution that supports collaboration from all stakeholders. A single point of contact with a pre-defined level of access for the exchange of information between agencies should be established to facilitate the process (Uthmani *et al*., 2010:394). There are, however, several challenges to overcome. First, Plecas *et al.* (2011:123) argue that the lack of a unified technological solution is preventing the sharing of information between different agencies. Second, the existence of 'institutional friction' that describes the difficulties in moving information across bureaucratic boundaries (Sheptycki, 2004:320). Next is 'linkage blindness' that inhibits information sharing across agencies due to reluctance or ignorance to sharing information, despite that the processes and agreements are already in place to facilitate information sharing (ibid:315). There is also the issue of dealing with inter-organisational cultures and their sub-cultures (ibid:323): if dealing with the

culture of the parent organisation is already challenging, the need to handle cultures of foreign organisations will be even more complicated.

Basic and Yakhlef (2015:137) draw attention to the need to re-negotiate spatial and cultural identities to make cooperation possible. The change requires a bold and ambitious paradigm shift of the organisational perspective and practices. The process involves a significant change of the culture and mindset of the internal organs to develop the willingness and openness to share knowledge to external bodies outside of the police body. It will be a daunting task as knowledge have been guarded heavily even among the internal departments or branches, and these are usually classified, which is usually not desensitised for sharing especially with external bodies. The process will end up in a vicious cycle if the police department is not willing to share, as the external bodies will also not open themselves up if they feel that they are not being trusted by the other party. Furthermore, earlier research has shown that cooperation comprises problems and conflicts (ibid:137). The overcoming of the differences involves construction and reconstruction of the collaboration obstacles, which the success is an ongoing and iterative process (ibid:137).

Overall, these studies highlight the need for innovation and collaboration to meet future challenges. For the police forces, the ability to innovate offers them the edge to stay ahead of the criminals. Innovation is not only about adopting the outcome or product but the catalyst for the organisation and its people to change their way of doing things to support the innovation process. Instead of focusing on internal resources to effect the changes, collaboration with the external stakeholders should also be attempted to take advantage of the expertise that may not be available in-house. A key determinant of the effectiveness of the collaborations depends on the willingness of the police forces to share information and knowledge with external parties, which will require breaking free from the conventional mentality of maintaining the confidentiality of the information. Despite the challenges identified, the potential for the fusion of knowledge between SPF and external parties is enormous through KM. More importantly, the organisation needs to pay explicit attention to transform itself to support the process of innovation.

With the increasing complexity and amount of data and information to be processed in the organisation, technology is regarded as the tool to support the KM initiatives. In the following section, the adoption of technology for KM would be examined to understand its practicality and challenges.

2.6.5 Use of Technology

Technology is not new to the KM processes as various technological solutions are readily available in the market (Cong & Pandya, 2003:31). Nonetheless, does the prevalence of the adoption of technology imply that these companies have achieved success in implementing KM? Cong and Pandya (2003) caution against this simplistic assumption that employing the technological measures is equivalent to success in KM by highlighting that "one must bear in mind that technology is just a crucial enabler. It can help connect people with information, and people with each other, but it is not the solution" (ibid:31). UNPAN (2003:10) advises similarly that "ICT infrastructure is just the means not an end by itself." The above observations are consistent with past studies that technology is a tool to facilitate knowledge sharing and interaction, but it is not the solution to achieve success in KM (Khalifa & Liu (2003); Lahneman (2004); Syed-Ikhsan & Rowland (2004); Tan & Rao (2013)). It can, therefore, be suggested that although technology provides the platform for KM, it does not take away the choice of engaging in knowledge sharing as the actual process is still dependent on the willingness of the people to share what they know.

KM initiatives should be integrated with the business processes (Sensky, 2002:391; Riege & Lindsay, 2006:24). The design and functionality of the KM system should not be running parallel to the operations and strategies of the organisation but aligned and integrated with it (Sensky, 2002:391; Okere, 2017:94). The KM tools need to be designed with the users as the focus, as complicated and user-unfriendly systems will significantly impact their usability (Chua & Lam, 2005:12). With a well-designed KM system, it is expected to encourage the stakeholders to participate in KM initiatives (Hafeez & Abdelmeguid, 2003:155). While KM system provides the means to increase

knowledge within the organisation, it does not indicate a corresponding engagement of the staff in learning (ibid:167). The difficulty in accessing various databases can also lead to difficulty in information retrieval (Chen *et al.*, 2002:271). It should also be recognised that the value of the technologies will only be actualised when the employees use the solutions that are put in place (Tan & Rao, 2013:77). Nevertheless, it should not be assumed that the utilisation rate of the system equates to its popularity or the perceived usefulness without examining the context. As the implementation of technological solutions usually involves high capital outlay, the management, in order to justify their investment decisions, may deliberately remove the alternative solutions and force the staff to adopt a specific system, even if the functions are not suitable to be used beyond the intended purpose and users. It is therefore important to examine the different indicators before concluding.

Since an organisation is made up of various departments with different scopes and practices, it is vital if the technological framework can be adapted easily and encourages interoperability to link the people and their functions together (Alavi & Leidner, 2001; UNPAN; 2003; ALMuhairi, 2016). It is contestable whether interoperability is a function of technology or the product of social interaction and collaborative activities among different users (Sanders & Henderson, 2013:256). The optimal solution is through willingness in knowledge sharing between the various departments. However, DeLong and Fahey (2000:119) argue that the if the staff benefit from not sharing their knowledge, the organisation's ability to leverage on knowledge will be limited, as an investment in ICT by itself does not result in culture change. Notwithstanding that, if the organisation has only achieved limited success in changing the knowledge sharing culture, a solution to achieve interoperability is using technology such that KM barriers from human interventions are kept to a minimum.

The over-reliance on technology as a KM tool may result in the underestimation of the importance of the people issues related to knowledge sharing (Carter & Scarbrough (2001); OECD (2003); Chua & Lam (2005)). McCall *et al.* (2008:78) caution that the use of the KM system is a 'double-edged sword'. They highlight that although the use of KM system may improve the decision-making process,

the over-reliance on it may pose a risk in the longer term by jeopardising the development of domain expertise (ibid:78). There is a need to recognise that technology is only one of the tools to support the notion, and activities such as social relations, networking and interactions are the actual drivers of KM practices (Mavodza & Ngulube, 2012:7). The SPF has taken a cautious approach towards the adoption of technology and uses it primarily as a supporting tool to assist in the analysis but not for decision making. This is because of the recognition that technology systems can only analyse based on the programmed algorithms and inputs parameters fed into them, but they cannot appreciate the contextual information of its application. Despite the tremendous advancement in artificial intelligence over the past few years, it is premature for organisations to assume that the current technological know-how enables the machines to replace the need for human analysis to make sense of the information presented to support the decision-making process. The problem analysis in policing is not solely based on facts or numbers; it is highly referenced to the contextual details and the circumstances. Furthermore, other human thinking skills cannot be substituted easily, such as the application of logic, inference skills and decision making.

Collectively, these studies outline technology as a critical influencing factor in KM. That being said, it should not be assumed that the use of technology equates to the implementation of KM, as the willingness to practise KM still lies with the people. Technology should be recognised as the tool that facilitates, not the means that promotes, knowledge sharing and generation. There should not be an over-reliance on technology, for it cannot analyse beyond what it has been programmed for. Furthermore, technology is unable to substitute human thinking skills. When implementing technological solutions for KM, there is a need to strike the right balance between effectiveness and efficiency. More importantly, practising KM should not be perceived as a chore, but to regard it as an inseparable part of the business processes through seamless integration.

With the appreciation of the various influencing factors and their impact on KM practices, the next section will introduce the conceptual framework to guide the approach for this study.

2.7 Conceptual Framework

This section introduces the theoretical concepts that would guide the forthcoming analysis of data to be investigated in this research. Through the critical realist perspective, the elements to be examined in this research are stratified into three domain layers and woven into a conceptual framework that serves as a blueprint to facilitate the investigation of the KM culture and its relationship, if any, to the performance of KM in the SPF, through the occurrence of the influencing factors and experienced by the participants or detailed in the available documentation. The conceptual framework for this research is presented in Figure 2.7.

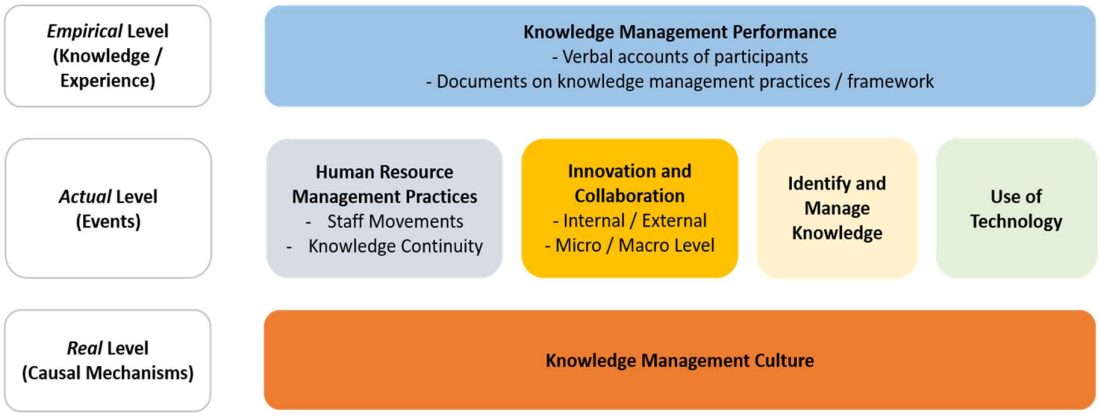


Figure 2.7: Conceptual Framework (author's own)

Culture is a subject that is complex and diverse, which makes it impossible to make full assertions of the concept. This impediment can be elucidated by 'epistemic fallacy', which posits that there is a limitation to the reality that can be comprehended by human knowledge of it (Bhaskar, 2008:27). Nevertheless, the observation of the collective behaviour is still valid to understand the events that have occurred, which in-turn help to understand the causal mechanisms of the reality to be studied. At the *empirical* level, the investigation of the KM culture involves establishing the perspective of the staff towards how knowledge is managed within the organisation and their understanding and awareness of the current practices and resources in place. The motivation to practice KM is also examined to find out if such practices are intrinsically (self) or externally (rewards) driven. The current lack of an empirical study to evaluate the maturity

of the KM culture in the SPF is making it challenging to assess the suitability of the KM measures to be implemented. The KM documents would also be examined to understand the KM practices and framework that are put in place in the organisation. Knowledge culture is posited as the key to knowledge implementation as it deals with people, which is the main source of knowledge in an organisation (Aydin & Dube, 2018:402). Therefore, it is anticipated that this research would provide insights into how the staff perceives KM is practised in the organisation and identify their motivations towards KM.

While people can describe their perspectives of the experienced culture, the scale of the experienced reality could be far from all in existence as there are events that are happening without being observed (Archer, 2020:140). The next step would be to investigate the occurrence of the events at the *actual* level. In this level, the various influencing factors of KM that are practised in the SPF are examined, which include the process of identifying and managing knowledge in the organisation, the practice of staff movements (particularly job rotations) as a human resource management driven initiative, the practice of knowledge collaboration among the internal and external stakeholders and the use of technology in the management of knowledge. Although the presence of the KM activities shows the scale of the KM practices in the organisation, these activities do not provide further insights beyond recognising the occurrence of events. Therefore, there is a need to go deeper into the reality to examine the generative mechanisms that cause the events to happen.

The critical realist approach seeks to investigate the KM culture of the organisation at the *real* level. It is in this domain the causal mechanisms that led to the occurrence of the events in the *actual* level and the experience of the participants in the *empirical* level are identified and studied. As culture is a complex subject, the identified influencing factors would define the scope and drive a targeted approach towards the appreciation of the KM culture of the organisation.

2.8 Summary

There is enough evidence to show that KM is one of the critical factors of competitive advantage in this current environment that emphasises innovation and value creation. With that said, it is perplexing to realise that while organisations generally agree and are aware that KM is essential, little seems to have been done to ensure that knowledge is effectively captured, retained and shared in the organisation for new knowledge to be created from the current.

For the SPF, knowledge is a critical resource for effective policing. From the tacit knowledge of incident management and public engagement to the explicit knowledge of police operating doctrines and legal powers, the importance of managing knowledge cannot be overemphasised; not only does it contribute to the effective management of the incidents, but also to the upholding of service delivery standards and public confidence that it has established. The backend functions of policymaking and organisational planning are equally dependent on information and knowledge, as these details provide the contextual information for effective decision making.

Individual knowledge is the basic building block of organisational knowledge, but it is not as simplistic as the summation of all the individual knowledge (Bhatt, 2001:70). Instead, organisational knowledge develops from the interaction of people, technologies and processes, which are unique to the organisation, and it is the intensity of this relationship between these factors that form the core competencies of the organisation and offers its competitive advantage (ibid:70). It can, therefore, be posited that the complexity of KM lies beyond managing the knowledge of an individual, but lies in synergising and augmenting the organisation's knowledge to accelerate its advantage.

Implementing KM requires a change in organisational philosophy, and it is primarily through cultivating the culture that the organisation can modify the interaction between people, technologies and techniques in its favour to leverage knowledge for the benefit of the organisation (Bhatt, 2001:74). Previous studies have also found that culture influences the approach towards the practice of KM

(Alavi *et al*., 2005:218). The KM culture of the organisation is shaped by staff across all levels; from the management in their directions and policies set to the workers in their work attitude and agenda, which will eventually have an impact on the performance of the organisation.

The implementation of KM has been established to be heavily dependent on the context of the application. External factors such as the operating environment of the organisation present the challenges experienced and the available opportunities at disposal. Internally, the environment sets the stage for the practice of KM, due to the interaction of the staff with one another and navigating in-between the policies of the organisation. The dynamic and complex nature of the interaction results in the uniqueness of every organisation, which makes KM difficult to be replicated from one organisation to the other, as what works in one organisation does not equate to success in another. The challenge calls for a detailed assessment of the organisational context before deciding on the measures to be implemented to enhance the KM practices.

The influencing factors to be considered for this research are consistent with the considerations of other police forces with similar organisational characteristics and/or operating environment, and how they intend to address the challenges with KM. The unique composition of uniformed and non-uniformed staff, a bureaucratic structure that emphasises structure and procedures and the dynamics of interaction between the elements, further increases the complexity of the phenomenon to be studied. The participants' suggestions of the potential areas of improvement would be recommended to shape the KM culture to enhance the KM performance of the organisation.

The next chapter evaluates the research paradigm and methodology to be adopted for the study. The analytical process and tools selection would be examined via the pilot study to determine the suitability of the data collection and analysis approach.

CHAPTER 3 – RESEARCH METHODOLOGY

3.1 Introduction

This chapter explains the choice of methodological approach and associated methods to be used for this research. The philosophical assumptions of the chosen paradigm were described, and the above choices were justified in this chapter. A detailed account of the data collection and analytical process and tool to be adopted were also presented.

To aid in the understanding of the relationships between the concepts and the development of a research methodology, the research framework for this research is adapted from that of Grix (2002:180) as illustrated in Figure 3.1. Grix's (2002:180) framework is an extension of Hay's (2002:64) as it includes the elements of methods and sources, which the former included to distinguish methods from the methodological approach. He emphasises that the two elements are closely related but are essentially different, as the methodological approach is concerned with the logic, potentialities and limitations, while method is the technique to collate and analyse data with linkages to the research questions to be addressed and to the sources of data collected (Grix, 2002:179).

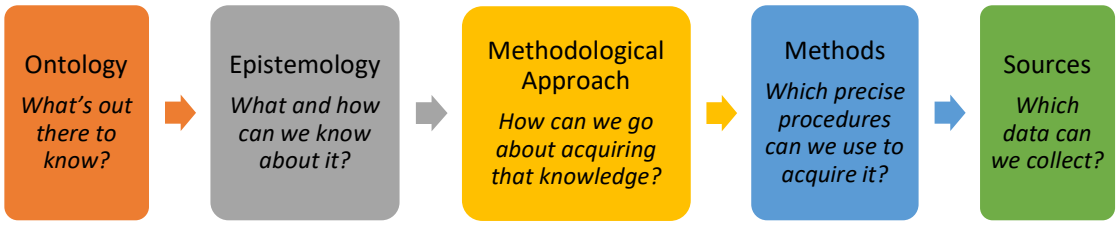


Figure 3.1: The Interrelationship between the Building Blocks of Research (Grix, 2002:180)

Grix's (2002:179) framework was selected as it offers an overview of the elements required and their interrelationship in developing a research methodology that is comprehensive and practical when planning to conduct research. He posited that there is a directional link between the above building blocks of research

(ibid:179), which serves as a guide in the identification and justification of the research methodology. Mack (2010:6) explained that the opinion of how one views the constructs of social reality and knowledge affects the process of uncovering the knowledge of relationships among phenomena, social behaviour and the evaluation of the research. In other words, the researcher's philosophical outlook is closely linked to the research he/she does (ibid:6). For this reason, the starting point of research requires the researcher to identify what constitutes reality and what can be researched about (ontological position) (Grix, 2002:179). The assumed position is in turn linked to what can be known about the reality by defining the angle of examination (epistemological perspective) (ibid:179). There is a need to highlight Hay's (2002) attempt to distinguish both as there are researchers who assume a "this or that" perspective towards the conditions of knowledge production. They perceive ontology and epistemological to be at opposite ends of a continuum, but the researcher was inclined towards Hay's (2002) approach of considering them to be interrelated and sequential, i.e. ontology defines how reality is viewed and how it exists while epistemology describes how to go about finding out the defined reality.

The conceptual lens established by the philosophies discussed above would permeate the research design, logic and flow of the processes to be adopted as it reflects the philosophical perspective of the researcher, which would consequently determine the methods to be undertaken for this research (Kivunja & Kuyini, 2017:28). Finally, the methods chosen for the research (such as the choice of tools and techniques to collect, analyse and interpret the data) are inextricably linked to the research questions posed and to the sources of data collected (Grix, 2002:179). The literature shows a general tendency to use methods and methodology interchangeably. There is a need to differentiate both as the former defines the rationale and approach for data collection that should support the chosen philosophical stances, whereas the latter describes the techniques used to collect the data.

This research investigates the understanding of the social constructs of the KM culture and its relationship, if any, with the performance of KM through the semi-structured interviews, while the documentation review seeks to examine the

reality from the organisational angle. Despite the attempt to maintain objectivity, the qualitative nature of the above approaches may still be regarded as lacking objectivity by positivists.

Besides Grix's (2002) building blocks of research as mentioned above, there is a need for the researcher to also reflect on ethical issues when conducting research (axiology). Kivunja and Kuyini (2017:28) suggest taking into consideration the upholding of principles of accessibility, privacy, property (or ownership), and accuracy when evaluating the ethical conduct. The principles would be elaborated in Sections 3.4.1, 3.7, 6.5 and 6.6.

To evaluate the feasibility of the research approach that is intended to be used in a larger study (Leon *et al.*, 2011:626), the researcher conducted a pilot study on a small scale over two weeks in early October 2018. The learning points and experience would minimise the foreseeable risks and issues and optimise the data collection process in the main study.

With Grix's (2002) research framework as the reference, the philosophical assumptions, the choice of the research paradigm, the methodological approach and the associated methods to be used for this research would be elaborated and explained in the following section.

3.2 Identification and Justification of Methodology and Paradigm Selection

This research aims to examine the KM culture and the relationship, if any, with the KM performance in the SPF, with critical realism as the underlying philosophical assumption.

Critical realism emerged in the 1970s through the work of Bhaskar (Fletcher, 2017:182). Instead of the conventional approach of taking the side of either objectivism or interpretivism, critical realism offers the researchers an alternative

philosophical position that resolves the contradictions and dichotomies of other philosophical positions (objectivism and interpretivism) (Alderson, 2019:55).

Critical realism emphasises two distinct dimensions of reality: for one, it comprises an intransitive dimension that operates independently of the perceptions of humans and their ability to comprehend it; the other is the transitive dimension that holds thought-objects (e.g. beliefs, theories, concepts) to construe ontologically real reality, yet distinct from the reality itself (Bhaskar, 2008:12,13). Scholars (Mingers, 2008:67; Wynn & Williams, 2012:790) agree with Bhaskar (2008), evident in their efforts to establish the theoretical setting of critical realism by distinguishing between the two dimensions of science which result in two distinct sets of realities.

For the intransitive objects of knowledge, the consensus is they are the real possibilities of the world with naturally occurring mechanisms and processes, and their existence will continue although they are invariant to the knowledge of people (Bhaskar, 2008:12). For example, weighted objects will continue to fall to the earth while light will continue to travel in a straight line even if the phenomena have not been theorised by scientists (ibid:11). Although the application is straight forward for natural sciences, its applicability in the study of organisational behaviour may be a challenge, as people may not always behave objectively or consistently which may lead to differing outcomes between people or inconsistent results over time. For the transitive dimension, Bhaskar (2008) stresses that antecedently established knowledge is used to explore the intransitive structure of the world. He elaborates his argument by reference to the use of antecedent knowledge of hydraulics to model and explains how blood is circulated in a human body (ibid:12); otherwise, the working principles for the latter may not be conceptualised as straightforwardly if it has to be explained from scratch.

Bhaskar's (2008) viewpoint is supported by scholars who assert that there is a limitation to human knowledge and understanding of reality: what is regarded as real (ontology) is not reducible to our knowledge of reality (epistemology) (Wynn & Williams (2012); Mingers *et al.* (2013); Fletcher (2017)). Bashkar (2008) further postulates that "a law may exist and be known to exist without our

knowing the law" (ibid:29). He explains by suggesting that what is known about the reality does not completely define what it is, as "what we can know to exist is just a part of what we can know" (ibid:29). This is because human knowledge captures only a small part of a deeper and vaster reality (Fletcher, 2017:182). Bhaskar (2008:5) posits the notion of 'epistemic fallacy' and critique positivism for limiting what can be understood about reality by what can be empirical known, while constructionism perceives reality to be entirely constructed through and within human knowledge boundary. He disagrees with the dichotomy of both philosophical positions that the understanding of reality is limited to human knowledge (Fletcher, 2017:182).

The above arguments highlight the limitation of the established theoretical knowledge that can be applied to aid in the understanding of reality. As such, it is recognised that the perceptions of the participants are part of the learning process to address the gaps in knowledge (Bhaskar, 2008:52; Mingers *et al.*, 2013:797). Furthermore, it has been established that the acceptance of direct observations and interpretation of experienced phenomenon further supports the application of critical realism in the qualitative study of social and psychological processes (Maxwell & Mittapalli, 2007:6). Maxwell (2011:146) emphasised that "there is no possibility of attaining a 'God's eye point of view' that is independent of any particular viewpoint." Therefore, it should be recognised that the account from every individual is a selective reconstruction or version of the reality (Gilbert, 2008:426). Although perceptions have been established to offer valid explanations of reality, it should be recognised that opinions from people experiencing the same phenomenon may differ due to the perception and experience of the individual. Therefore, the appreciation of the context is necessary for accurate analysis of the reality to be studied.

To offer a structured approach towards the study of reality, Bhaskar (2008) suggests that critical realism ontology can be stratified into three levels. The *empirical* level is where the events are described by people through encounters and interpretation (Fletcher, 2017:183). Applying to the context of this research, the domain of the *empirical* level is represented by the opinions and comments offered by the participants as they experience KM in the organisation. The

understanding of knowledge of reality, which results from social conditioning, cannot be comprehended without examining the interpretation of the actors and context of the phenomenon to be studied (Saunders *et al*., 2009:115). In addition to people's interpretation, the *empirical* level also includes the written documentation on KM that are related to SPF. From a critical realist perspective, the verbal accounts of the participants and the documented knowledge are not sufficient to appreciate the KM culture of the organisation, and there is a need to probe deeper into the other domains (*actual* and *real*) of reality. The next level is *actual*, where events are occurring regardless of whether people can experience or interpret them (Fletcher, 2017:183). For this study, the events that form the domain of the *actual* level are the KM activities that are practised and the organisational processes to manage the explicit and tacit knowledge. While the description of the KM activities could offer a detailed account of the KM practices in SPF, the account does not explicate the causal mechanisms of the underlying KM culture within the organisation. The critical realist seeks to investigate further into the *real* domain to appreciate the reality. The last level is *real*, and this comprises of internally related structure/objects/human practices leading to causal mechanisms to exist to cause events to be observed at the *empirical* level (Fletcher, 2017:183). In this research, the domain of the *real* level is the KM culture, which gives rise to the causal mechanisms of how KM is practised and perceived in the organisation. The critical realism perspective seeks to examine and identify the causal mechanisms (*real* level) that explain the occurrence of events (*actual* level) that are observed and interpreted (*empirical* level). The understanding of the powers of the structure/objects or human practices and the conditions that generate mechanisms to produce events is key in critical realism (de Souza, 2014:142). The concept of critical realism supersedes the importance placed on the frequency, strength or empirical repeatability of the conjunction of events as indications of causation (ibid:142).

In short, an important tenet of critical realism lies in the irreducible of ontology (what is considered real/reality) into epistemology (human knowledge of reality). This understanding gives rise to the concept of epistemic fallacy and helps to establish the acceptance of human perception as a valid part of the understanding of the reality being examined. The stratified levels of reality and the emergence

across the different stratified levels has led to further developments of critical realism, particularly the morphogenetic approach postulated by Archer (1995).

Archer (1995:66, 2005:18) posits that the different levels of reality possess their emergent properties and powers (or underlying causal mechanism), which are irreducible to other levels; in other words, they are analytically separable. The morphogenetic approach provides an analytical approach that accounts for the distinct interaction of elements of agency, structure and culture. Agency can be understood as the capacity of the individual to make independent choices despite being espoused in a diverse culture setting (McLaughlin & Dietz, 2008:105). Structure is defined as the patterned social arrangements that form the society as a whole and determine the actions of individuals that are socialised into the system (Deji, 2011:71). Lastly, culture can be considered to be the group-specific behaviour that is acquired from social influences (ibid:139). For Archer (2005:8), they synthesise the three elements and postulate that culture is the force that mediates structure and agency. To examine the complex interaction or interplay between structure, agency and culture, Archer (2020:141) calls for the three elements to be analysed separately, giving rise to the need for analytical dualism as the epistemological approach. Her argument for analytical dualism can be comprehended such that "without human individuals, social reality is not conceivable and this reality reveals itself through human behaviours" (Parker 2007, as cited by Banifatemeh *et al*., 2018:60).

Archer (2005:20) disagrees with conflationary theorising that morphs one element into another. She explains that in a downward conflation, culture exerts a strong influence over the people, and they behave in a way as demanded by the social norms and structures (Banifatemeh *et al*., 2018:60). For the upward conflation, the culture is defined and imposed by the aggregated behaviour of the dominant groups of societies (ibid:60). Lastly, central conflation occurs when the culture and the social norms are mutually constitutive, such that the people shape the culture, but their behaviour is also culturally moulded (Archer, 2005:23). Archer (2005:25) postulates the non-conflationary approach to understand culture, through the morphogenetic perspective by application of the concept of analytical dualism over time. She suggests that the causal interplay between the elements of

agency, structure and culture is not static, but dynamic and constantly changing, which provides the basis for the analysis of both transformational and continuance of social structures (Archer, 2020:141). The morphogenetic framework proposes that the structure/culture factors exist prior to the actions leading to its reproduction/transformation, and the structural/cultural elaboration results from the action sequence that gave rise to it (Archer, 1995:15). In this way, social structures are the pre-existing outcomes of previous social interactions between people in the past who have conditioned the context in which people currently find themselves (Lindley & Lotz-Sisitka, 2019:12); how the current people respond to this context will then shape the social structures for the people in the future (ibid:12).

Archer (2007) further extends the understanding of the interplay between agency and structure through the concept of reflexivity, which focuses on the individual level. The notion is anchored from the analytical separation of structure and agency in order for the interplay of both elements to be analysed (Caetano, 2014:3). She posits reflexivity as an 'internal conversation' of an individual, resulting from the inner conscious deliberations (Archer, 2007:3). The ability to engage in such an internal dialogue expresses the emergent power of individuals that are not entailed by routine or habitual action (ibid:3). In other words, reflexivity mediates between structure and agency (Caetano, 2014:3); the subjective powers of reflexivity conciliate the influence of the powers of structure or culture have on the agency and are necessary to explain social outcomes (Archer, 2007:5). While people are capable to engage in reflexivity, Archer acknowledges that the ability to exercise it differs among individual (Al-Amoudi, 2017:72). The practice of reflexivity is not homogeneous, but it is exercised in diverse ways depending on how the people relate the social contexts/circumstances with their key concerns (Archer, 2007:7; Caetano, 2014:3). Archer (2007:10) concludes that human reflexivity has the autonomy to decide whether to accept or defy the causal powers of social properties.

In gist, Archer's (1995, 2005, 2007) contribution in the application of critical realism as a methodological approach based on analytical dualism and reflexivity

have made inroads into the study of critical realism by extending the focus to the individuals and the interplay between agency and the structure/culture.

While the concepts of Archer and Bhaskar are nested in the critical realism perspective, there are differences between both. Although both scholars recognise that culture has a role to play in influencing the actions of the individual, Archer (1995) emphasises on analytical dualism that separates distinctively the agency and structure/culture, and her notion on the reflexivity of the individual and the ability of oneself to be/not to be influenced by the presence of the structure/culture. In other words, she is focused on determining the why and how reflexivity happens for the individual to explain the rationale for an action. Also, while the decisions of people may be constrained by the structure/culture they are in, their choices will shape the structure/culture for the future. For Bhaskar (2008), the focus is on deriving the response of the individuals in response to the actions that are observed, which are occurring due to the presence of the causal mechanisms operating at the deepest level of the reality. Another difference between Archer's (1995) morphogenetic approach and that of Bhaskar's (2008) ontology of reality lies in the former's consideration of time as a theoretical variable to find out how and why social changes occur. Introducing the time variable calls for the investigation of the pre-existing structures/cultures, to the interaction of the people and the structures/culture, and the post-interaction outcome. It is therefore assessed that Archer's (2005) approach is suitably placed in research that examines the interplay of the elements to be studied over time, similar to that of a longitudinal study.

In gist, an advantage of critical realism lies in its ability to resolve dichotomies and contradictions of other philosophical positions into dialectic (Alderson, 2019:56). Using Bhaskar's (2008) stratified levels of reality as the ontological basis, critical realism enables the appreciation of the causal mechanisms of the KM culture and the relationship (if any) with the performance of KM, through the KM practices that are experienced by the participants. Also, critical realism recognises the limitation of attempting to explain the unknowns with what is currently known, and considering the empirical responses (such as socially constructed meanings) to be valid accounts of the reality. Other paradigms have

been considered, and the evaluation that follows would provide the justifications that critical realism is a more suitable approach to explain the experienced phenomenon.

Objectivism is an alternative ontological perspective, which perceives KM culture and its meaning to exist independently of the participants (Grix, 2001:27, 2002:177). However, objectivism is unsuitable for research of such nature as it disregards socially construed meanings as a valid and integral part of the experienced reality. On the other end of the continuum is subjectivism, which claims that the meaning of culture is construed entirely by the participants experiencing it (Grix, 2001:27, 2002:177). Similarly, this doctrine cannot explain satisfactorily the observation of shared behaviour and actions that are exhibited without the realisation of the people experiencing it, which are believed to be the effects of the causal mechanisms that have resulted to how KM is practised. Furthermore, it was established in Section 1.4 that the human perception of reality is constantly changing, but the actuality is that the underlying mechanisms governing the reality are generally unchanged. This suggests that it is inappropriate for the meaning of reality to be completely socially constructed as advocated by subjectivism.

Careful consideration has also been exercised to evaluate epistemological stances such as positivism and constructionism. A comparison of the levels of reality with constructionism, positivism and critical realism is illustrated in Figure 3.2.

Levels of Reality	Constructionism	Positivism	Critical Realism
Empirical – experience, perception and narration of events, empirically observed	**X**	**X**	**X**
Actual – events that happened/occurred, regardless of whether they are known/perceived by people		**X**	**X**
Real – causal mechanisms that led to the occurrence of events			**X**

Figure 3.2: Three Levels of Reality (Alderson, 2019:56)

Constructionists work mainly at the *empirical* level, concerned with people and events only as they are constructed through narratives (Alderson, 2019:55). To adopt the choice of the constructionist position suggests that there is no definite reality as the meaning is construed by the people experiencing it (Saunders *et al*., 2009:111). However, this position does not consider the limitation of human ability that captures only a small part of a deeper and vaster reality (Miller & Tsang, 2010:144; Fletcher, 2017:4). The pursuance of a constructionist approach may cause dogmatism and believing that there is no truth beyond the social constructs of the group (Taylor, 2018:219). This may result in only believing that the reality as being perceived in any way that is being perceived to be (ibid:219), without acknowledging the existence of the natural occurrence of the KM culture in the organisation. This is because the outcome is dependent entirely on the perception of the participants and their interaction in situations where the phenomenon to be studied is experienced. As a result, the participants' interpretation of the reality is subjective as the perception depends on their derived experience, which may differ from the actual KM culture present in the organisation. In contrast, positivists focus on the *actual* level and reduce the understanding of the reality into empirical details (Alderson, 2019:55), which fits into the 'epistemic fallacy' proposition posited by Bhaskar (2008:5). From the research approach perspective, positivism would require the research to be free from the intervention of the participants and researcher (Saunders *et al*., 2009:113), which advocates the application of the methods of the natural sciences to the study of social reality and beyond (Grix, 2001:27, 2002:178). This approach does not fit the nature of this research, where the construed dimension of reality is closely related to the experience of the participants and is equally recognised as a version of the experienced reality. In gist, constructionists and positivists approaches are focused on the observable effects (evidence) and both overlook the causal mechanisms at the *real* level (Alderson, 2019:55), which Bhaskar (2008:52) describes as serving "the real mechanisms that generate the actual phenomena of the world". It is therefore assessed that critical realism is the most appropriate, as it is compatible with the theoretical framework and choice of methodology for this research.

Following the identification of the ontological position and epistemological perspective, the next step in the proposed research framework is the selection of the methodological approach, which should take into consideration the research problem to be addressed (Grix, 2002:179; Creswell, 2008:18). As highlighted in Section 3.1, methodological approach and methods used in this research are differentiated, with the former concerned with the logic of scientific inquiry; in particular with investigating the potentialities and limitations of particular techniques or procedures and the assumptions about how knowledge is produced (Grix, 2002:179). The qualitative approach is compatible with the critical realist position as it supports the understanding of the causal mechanisms and processes that result in a particular outcome, as opposed to demonstrating the existence of a relationship between variables or the constant conjunction of events (Maxwell, 2012:658; Mingers *et al.*, 2013:796). It is through uncovering the underlying generative mechanisms leading to the identified causations that critical realism seeks to explain the experienced phenomenon (Bhaskar (2008); Wong & Lee (2012); Mingers *et al.* (2013)).

The above assertion aims to explore the KM culture and the KM performance in the SPF, through the occurrences of the practice of the influencing factors as perceived by the participants. Also, the qualitative inquiry facilitates the study of issues in detail and openness without being constrained by predetermined categories of analysis (Patton, 2002:14). The approach involves the investigation of the social phenomenon in its natural settings, including how people experience aspects of their lives, how individuals/groups behave and how organisations function (Macdonald & Headlam, 2009:35; Teherani *et al*., 2015:669). Besides the externally observable behaviour, the process aims to appreciate the internal states (worldview, opinions, values, attitudes and shared meanings) of the participants (Patton, 2002:48). This approach encourages the researcher to conduct the research in a naturalistic setting and be the key instrument for data collection, analysis and interpretation (Creswell, 2008:175,176; Teherani *et al*., 2015:669).

The researcher's position as a member of the SPF is advantageous for he can interpret the perceptions of the participants of the experienced phenomenon within

the relevant context and organisational setting. The interpretation may not be accurate or applied in the proper context if carried out by a third-party who may not understand the internal processes or the social dynamics to be studied. Despite the above, there would still be limitations in this research, which the researcher has fully acknowledged in Section 6.3. The possibility to use quantitative research and mixed methods (quantitative and qualitative) of inquiry has also been carefully evaluated, and both have been assessed to be unsuitable.

First, the quantitative approach is primarily concerned with generalising confident results from a sample to a population using a larger data size (Patton, 2002:46). As such, statistical reliability is sought after in quantitative research, which requires a considerable number of cases for verifiability, reproducibility and reliability (Grix, 2001:30). Nonetheless, it should not be assumed that the same traits are not desired in a qualitative approach. Instead, it should be recognised that data saturation is expected to take effect after examining a smaller number of cases (see Section 3.4.3). Also, one of the key objectives of quantitative research is its focus on the identification of factors that influence an outcome, or for testing of theory or explanation (Creswell, 2008:18). However, the above does not address the objective of this research, which seeks to interpret the participants' perspectives of the KM culture and the KM performance in the contextual setting, based on their observation and interaction with the occurrence of the KM practices. To achieve the objective requires the research process to collect rich and descriptive data, which can be achieved by conducting a qualitative inquiry, as the focus is to understand a phenomenon in depth through careful selection of information-rich cases (ibid:18).

The mixed methods research has also been explored as the approach suggests the advantages of employing quantitative and qualitative by drawing strengths and minimising the weakness from both in single research (Johnson & Onwuegbuzie, 2004:14; Maxwell, 2011:148). Nevertheless, it is also recognised that "mixed methods are inherently neither more nor less valid than specific approaches to research" (Bazeley, 2004:9). This suggests that the choice of a single qualitative method is equally justifiable to address the research problem. Further, a mixed-method is also deemed to increase the complexity of the research, coupled with

the time, effort and resource intensiveness to collect and analyse the necessary data using the dual approach (Bazeley 2004:8; Johnson & Onwuegbuzie, 2004:21). Bazeley (2004:4) also emphasised that for mixed methods to be of rigour, there needs to be a full commitment to the demands required for the research using both methods. Therefore, mixed methods do not offer a significant advantage over a single qualitative method in achieving the objectives of this research. Several researchers such as Hughes and Jackson (2004), Sheptycki (2004), Seba and Rowley (2010), Sanders and Henderson (2013), Goode and Lumsden (2016) and Olarinoye *et al.* (2016) have adopted a similar approach in their method of study; their past research in the policing context and about related topics to KM offer confidence to the intended approach for this research.

Data collection would be carried out using two approaches. First, the SPF KM documents would be identified and reviewed to empirically identify the objective reality of the KM culture in the organisation. In addition to the internal documents, published literature on the subject of interest related to SPF would also be used to supplement the findings. Second, semi-structured interviews would be conducted to collect the perceptions and attitudes of the participants towards the issues being investigated (MacDonald & Headlam, 2009:39), which complements the document review and piece together the understanding of the KM culture in the SPF. The semi-structured interviews balance the desire for the neutrality of the researcher using an interview guide, yet it provides the opportunity for the researcher to capture varied perspectives of the participants with free-response questions. While surveys are recognised to be an alternative method, it is not the most suitable for this research as it is expected that the sample population would be small. Furthermore, the details derived from surveys are limited to the range of the proposed responses, which may not match the richness of the data to be expected from interviews.

To the quantitative purists who maintain that academic enquires should be time and context-free, the choice of the qualitative research is perceived to be lacking in neutrality and objectivity as they believe that it would lead to the possibility of biases (Johnson & Onwuegbuzie, 2004:14). In the same vein, the abandoning of scientific procedures of verifications may be construed as having limited

applicability beyond its subject to be studied (Saunders *et al*., 2009:111; Mack, 2010:8). Although the need for objectivity should be advocated, it should not disregard the fact that the approach to conducting research fundamentally depends on the perspective of the researcher and the research question to be addressed.

Scholars (e.g. Guba & Lincoln (1994); Saunders *et al*. (2009); Killam (2013)) have argued that no paradigm is more superior to the other as it is merely about which one is more appropriate to address the research question. Furthermore, the researcher has already argued that the recognition of the possibility of bias in qualitative research should not be equated with the admission that quantitative research is superior. As researchers, there is a need to acknowledge that it is a challenge for a piece of research to be entirely free from perception as any decision made by the researcher in the course of the research can be regarded as an act of influence or bias. This proposition is in line with that of Guba and Lincoln (1994:108) as they think that all cases of human constructions are subject to human error. The types of biases and the efforts to overcome them would be elaborated in Section 6.6.

The next section identifies the data source and the participants' demographics for this study.

3.3 Data Source and Sample Selection

Sampling is the selection of selected data sources from which data are collected to address the research objectives (Gentles *et al*., 2015:1775). This section serves to systematically inform and provide the justification for the choice of the data source, sample selection and sample frame to be used for this research. The aim is to ensure the collection of rich quality data and that the range of perspectives gathered represents the experienced phenomenon to address the research question and objectives.

3.3.1 Data Source

The data source for this research is the SPF. The SPF, selected as the organisation for this research, is involved in an array of processes from planning to operations and provides a rich context for the study of KM practices. In recent years, there has also been greater emphasis placed on KM as the organisation is recognising the effect job rotation has on knowledge continuity. Furthermore, research in KM within the public organisation is limited (e.g. Tan & Rao, 2013) and the focus has been on the KM practices and not on the KM culture which this thesis addresses.

Having worked with this organisation for more than a decade allows the researcher to offer his observations on the experienced phenomenon in a natural setting and interpret the findings within context. However, his employment as a member of this organisation may cast doubts on his objectivity and positionality as a researcher, and the likelihood of introducing insider-outsider bias into this research. The discussions into the possible effects are available in Sections 6.5 and 6.6.

Being an employee of the organisation has also provided the researcher with direct access to the documents needed for review and the staff for data collection. Conversely, the consent for access is less likely to be acceded for external researchers due to the classified information and sensitivity of police work. Approvals to conduct this research in the SPF have been granted by the Planning and Organisational Department and Manpower Department.

English would be used for the data collection as it is the official working language in Singapore. The participants are not expected to have trouble in understanding the questions posed to them and articulating their thoughts as the participants have a minimum of a tertiary level education and the questions would be carefully framed using English that is clear and easy to understand.

3.3.2 Sample Frame

The target sample of this research is the branches that perform staff work in the SPF, specifically, the departments with dedicated policy planning and/or operations planning branches. Staff work is defined as the function undertaken by an officer who studies the situation, recommends solutions, translates the superior's decisions and supervises their execution to ensure adherence and successful implementation of the intentions and policies (Ng, 2009:3). Officers performing such functions are responsible for the planning and execution of the policies and operational framework of the organisation. The nature of staff work is knowledge-based: the officers are expected to have a sound understanding of the background of the subject with the familiarity of the past concerns and previous recommendations for meaningful comparisons and more in-depth analysis of the issues in question (ibid:6,7).

As the officers in SPF are rotated continuously as part of human resource practices, the availability of the background knowledge essential for staff work depends mostly on the KM practices in place, which can be shaped by the KM culture of the organisation. Therefore, these officers who are involved in the practice of KM could relate to the experienced culture and narrate their perspectives regarding how the performance of KM practices in the organisation could have been impacted by job rotation.

Purposive sampling would be adopted to identify the participants such that the research problem and phenomenon of the study can be informed intentionally (Creswell, 2007:125; Moser & Korstjens, 2018:10). Purposive sampling involves the judgement of the researcher to decide about who and what to be sampled, what form of sampling should be taken and the sampling size (Creswell, 2007:125). The choice of the participants is deliberate due to the qualities and characteristics that the participants possess (Etikan *et al.*, 2016:3). It is recognised that the researcher effect is inevitable in the exercise of judgement. The reflection on the possible bias that may be introduced in this research is elaborated in Section 6.6. By concentrating only on the participants that have the characteristics to offer meaningful insights of the experienced phenomenon through purposive sampling,

the available resources can be utilised most efficiently such that the diversity of perceptions to be gathered can address the research question and the research objectives effectively (Etikan *et al*., 2016:2,3).

Despite the recognition that some form of KM is practised across all levels, it may be too exhaustive to consider all the staff involved in planning and/or operations for this study by collecting data from all the members in these departments. As such, the strategy of purposive sampling using pre-specified criteria to select the participants for data collection would be adopted. Although the KM culture can be experienced anywhere in the organisation, it takes time to appreciate the phenomenon in its context and be able to identify the attributing factors. Therefore, it is more meaningful to focus on officers that have worked in several departments such that the experience they narrate is from a more holistic perspective.

The success of purposive sampling depends on the availability and willingness to participate (Etikan *et al*., 2016:3). There is the risk that the identified participants may not be willing to participate in this research and it is necessary to anticipate the reasons at the onset so actions could be taken to minimise the possibility of poor response. A cause of poor response could be because of the heavy work commitments, which may lead to the participants rejecting the invitation to participate. For instance, the participants may be heavily involved in preparations for upcoming deployments they do not have time on hand for other engagements. Therefore, to overcome this, the interview sessions would not be scheduled before major deployments. Also, appointments would be booked in advance to secure their commitment to participate. The times and venues of the interview sessions would be at the convenience of the participants.

There are three main staff compositions in the SPF. The first group is the regular uniformed officers (police officers), and these officers are subject to the organisation human resource policy of job rotations where they may be switched to other positions in the SPF after serving for about three to five years in a position. Another group of uniformed officers is those serving their two years of full-time national service, a requirement for all males in Singapore after they turn 18 years

old. This group primarily performs support and administrative roles, and it does not subject them to job rotations. They leave the organisation when their term of service is up. The last group is the non-uniformed civilian officers. Their roles are like that of the regular uniformed officers as they are also eligible for job transfers after performing for a period in a specific role. The only difference between this group and the uniformed officers is that they are non-uniformed and therefore do not have the legal powers vested in the police officers. The difference in the service scheme between the uniformed officers and the non-uniformed civilian officers is not expected to have a significant impact during the data collection process and analysis stage, as the availability of legal powers only affects one's authority and capacity to discharge his/her policing duties.

The first cut is to exclude the full-time national service staff as their role is primarily administrative and supportive, which makes them less involved in the KM process. As such, only the uniformed regular officers and non-uniformed civilian officers directly involved in planning, operational and project management would be shortlisted as participants as these are the areas that are more involved in the practice of KM. Also, these positions are required to collaborate with counterparts from other departments or stakeholders from outside the SPF, which suggests that they could relate their perspectives towards information and knowledge sharing with external parties. The participants would comprise the Executives (Planning Officers, Operations Officers, etc) and Middle Managers (Heads of Department, Managers, Assistant/Deputy Directors). This is because their positions are also subjected to the human resource policy of job rotation after serving for about three to five years in a position, which is a factor to be investigated in this study to determine if there is a considerable degree of knowledge loss whenever such movements occur.

Another criterion to consider is that the participants should have enough exposure to the KM culture and the corresponding KM practices to offer meaningful perspectives. For this research, only participants that have been involved in at least two rounds of job rotations within the SPF would be considered. This criterion is selected as the experience from working in different departments is likely to offer a more consistent picture of the experienced phenomenon and minimises the

possibility that the perspective gathered is an isolated occurrence. The choice of adopting the number of job rotations as opposed to the years of service in the organisation or a particular position as the consideration is because there are staff, especially the non-uniformed civilian officers that could not be rotated for other positions in the organisation because of their involvement in the specialised domain (e.g. infrastructure, engineering). Although their scope of work may involve KM, their lack of mobility in the organisation may limit their ability to respond to other questions during the interview and limit the range of responses that otherwise could have been collected. As a regular job rotation happens after a minimum of about two to three years in a position, the earlier criterion of a minimum of two rounds of job rotations means that participants have a minimum of at least four years of working in the organisation. Insofar, purposive sampling has focused on the qualitative selection of people representative who has experienced the phenomenon (Creswell, 2007:128). Therefore, the criteria for a minimal two rounds of job rotations with at least four years of experience in the organisation would offer a reasonable amount of time to relate to the experienced phenomenon by the Executives, while the Middle Managers would have more years of experience based on their seniority.

In terms of gender representation, studies (e.g. Pangil & Nasurdin (2008); Ismail & Yusof (2009); Marouf (2015)) have reported a neutral position where there is no significant difference in the overall KM behaviour between males and females. However, the decision would still be to include both male and female participants in the data collection process to avoid potential bias.

Other factors are also considered to achieve a more uniform participants' profile, such as the hierarchy in the organisation, uniformed and non-uniformed group representation and age. Even though the findings from the literature review did not highlight specific profiling that warrants extra attention, maintaining uniformed profiling would allow the picking up of patterns from the findings that may be of value for this and subsequent research.

The sample frame can be illustrated in Figure 3.3. It should be recognised that sampling is akin to a filtering process where the sample is sieved out after applying the 'filters' (or criteria) in sequence.

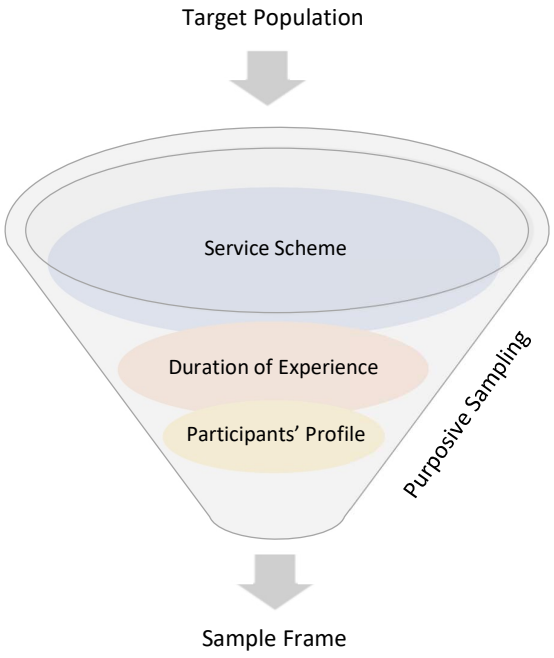


Figure 3.3: Sample Frame (author's own)

3.3.3 Sample Size

The nature of a qualitative study is to focus on the representativeness of the subject and not on concluding the proposition through the support of large samples (Crouch & McKenzie, 2006:492). As such, the responses of the participants should be recognised as variants of an experienced phenomenon rather than bearers of a specific viewpoint (ibid:493). It can be a challenge to estimate the number of participants for qualitative research such that sufficient data is collected to reflect most, or all the perceptions present before the data becomes repetitive and redundant (Morse, 1995:147; Mason, 2010:2).

It is acknowledged that the completeness of the perceptions is difficult to determine. There is also the possibility to be misled when the initial findings are found to be reasonably consistent, which may lead to the conclusion that the data

collection is 'complete' when there could be other perspectives that have not been considered. Unfortunately, surveying the full population is often not practical to eliminate all the risks due to limited time and resources. Nevertheless, Morse (2000:3,4)) postulates that small sample size is adequate if the nature of the research topic is straightforward and clear, the scope of the study is focused and sufficiently defined and if the data extracted from the participants is of good quality (in terms of usability). Similarly, Mason (2010:14) emphasises the importance of the data quality over sample size as "the sample size becomes irrelevant as the quality of the data is the measurement of its value". Francis *et al*. (2010:1230) stressed that the determination of the sample size of qualitative research should not be confused with the statistical parameters demands of quantitative research. This is because the amount of data is not necessarily corresponding to the number of participants (Morse, 2015:587).

As there are no fixed rules to determine the adequacy of data, the concept of data saturation would be adopted to estimate the appropriate sample size for qualitative research (Morse (1995, 2015); Mason (2010); Gentles *et al*. (2015); Moser & Korstjens (2018)). Data saturation is believed to be achieved when no new information is revealed despite more data having been collected (Morse, 1995:147; Francis *et al*., 2010:1230; Gentles *et al*., 2015:1781; Moser & Korstjens, 2018:11), with the principle for qualitative research focused on the depth and width of details derived than on the quantity of data required to create the pattern (Morse, 1995:147; Moser & Korstjens, 2018:11). This is echoed by Crouch and McKenzie (2006:489), who state that qualitative research is focused on establishing the dimensions of a subject that can be effectively achieved without the need for a large sample size.

Although the determination of data saturation is achievable theoretically, it could be a practical challenge. How much data needs to be collected and compared before the researcher can confidently ascertain that data saturation has indeed been achieved? There is no consensus in the method of establishing when data saturation has been reached (Francis *et al*., 2010:1229). Without a pre-determined number, it would be laborious to collect data from the entire sample population. Gentles *et al*. (2015:1782) agree that although it is challenging to determine the

sample size required to achieve saturation before the study, they recognise the practical need to estimate the sample size as it affects the resources required for data collection. An alternative approach is to collect data until no new opinions are uncovered, which is a sign of achieving data saturation. However, the exact point of occurrence of data saturation can be disputed when there are still opinions that have yet to be collected. As a guide, Morse (2000:5) and Guest *et al*. (2006:78) suggest about six to ten participants for such a study, while Polkinghorne (1989) (as cited in Creswell, 2007 pp. 61) proposes between five to twenty-five participants, and Colaizzi (1978) (as cited in Gentles *et al*., 2015:1783) recommends about twelve participants. For this research, it is posited that up to twenty participants would be sufficient to achieve data saturation. The proposed sample size, which comprises of twenty-two participants, exceeds the range recommended by scholars (e.g. Colaizzi (1978); Polkinghorne (1989); Guest *et al*. (2006); Francis *et al*. (2010); Morse (2000, 2015)).

The possible sample size for this research can range from the proposed twenty-two participants up to the full population in the SPF. Unlike quantitative research where the minimum size of the sample can be calculated by statistical inference, to determine the additional participants above the threshold to be interviewed in qualitative research is meaningless, as any number closer to the population size is perceived to be more favourable than any number smaller. As a result, the relentless pursuit of the largest possible sample size is against the principle of data saturation. Also, there would be practical implications such as the difficulty to seek participants' participation and the unnecessary burden on the resources and demands for data collection and analysis without correspondingly meaningful data to be derived.

The selected sample size is assessed to be sufficient for this research based on the reasons that follow. First, the small sample size would suffice if there is homogeneity in the participants (Guest *et al*., 2006:75). The sample population for this research is believed to be mostly homogeneous as all the participants are the staff of SPF. They are required to have received at least formal tertiary education (minimum Polytechnic Diploma). The uniformed officers are also required to undergo training in the police academy while the non-uniformed staff

need to undergo an immersion programme when they enter the civil service. As mentioned in Section 3.3.2, the service scheme appears to be the most significant difference between the uniform and non-uniform officers, but it is the possession of police powers that differentiates the two groups. However, the difference in service scheme is not expected to impact the way KM is practised or how the culture is perceived although any variance that surfaces may warrant further investigation in any future studies. Second, the use of a semi-structured interview method for data collection in this research is expected to limit the range of questions to be asked. Otherwise, new responses would continuously be introduced and it would be difficult to achieve data saturation (ibid:75). Last, the scope of this study, to understand how the KM culture is influencing the adaptation of KM processes, is straightforward and unambiguous; the participants are likely to relate to the topic as they would have experienced the identified phenomenon in the course of their work.

It should be noted that besides the experience in the department the participants are currently serving, the participants could also relate their prior experience in other SPF departments as a result of the regular job rotations, which would significantly enrich the quality and representativeness of the data collected. Additional iterations of post data collection interviews would be conducted should the need arise to solicit for more information. As a result, only a small number of participants is required to provide an understanding of the phenomenon of interest (Guest *et al*., 2006:75). A proportionate mix of Executives and Middle Managers are expected to offer a balanced representation of the perspectives of the working and supervisory level about the experienced phenomenon.

3.3.4 Participants' Demographics

The profile of the participants was analysed to gain insights into the characteristics of the sample and the appreciation of the background of the participants.

To assess the suitability of the data source, a pilot study was conducted and three participants were selected based on purposive sampling (see Section 3.3.2). The findings of the pilot study showed that the participants' profile was suitable for

the study as they could relate closely to the research topic by elaborating their views and cite practical examples to support their opinions.

For the main study, a total of 22 participants were selected and their willingness to take part in this research. The profile of the participants in the main study varied in order to mirror the diversity of the service schemes of the officers and considered the gender representation in the organisation. The profile of the participants was summarised in Figure 3.4.

S/N	Pseudonym	Current Job Function	Gender	Age
P1	David	Operations	Male	34
P2	Tom	Operations	Male	33
P3	Warren	Operations	Male	33
P4	Jennifer	Training	Female	36
P5	Jim	Manpower	Male	36
P6	Alan	Investigation	Male	34
P7	Eric	Logistics	Male	33
P8	Daniel	Manpower	Male	37
P9	Marcus	Training	Male	40
P10	Francis	Planning	Male	39
P11	Dave	Investigation	Male	33
P12	Howard	Planning	Male	33
P13	Smith	Planning	Male	55
P14	Jonathan	Operations	Male	38
P15	Olivia	Intelligence	Female	32
P16	Alex	Operations	Male	34
P17	Rose	Operations	Female	35
P18	John	Operations	Male	36
P19	Agnes	Planning Operations	Female	40
P20	Candice	Governance	Female	40
P21	Steve	Planning	Male	47
P22	Mark	Planning	Male	46

Gender proportion: • Male: 17 (77%) • Female: 5 (23%)	Service Scheme: • Uniformed: 20 (90%) • Non-uniformed: 2 (10%)
Years of experience: • Average: 13	The number of job postings participated: • Average: 4.4

Figure 3.4: Summary of Participants' Profiles

To recapitulate the selection criteria in Section 3.3.2, there are three service schemes available in the SPF: uniformed police officers, uniformed officers (national service) and non-uniformed officers. Out of these, only the uniformed police officers and the non-uniformed officers were selected for their KM involvement in their work and their participation in the regular job rotations, which were investigated for how the practice of KM in the organisation was perceived by the participants.

For this study, uniformed police officers made up 90% of the participants and 10% were non-uniformed officers. The proportion was comparable to the manpower composition of the SPF, where the number of non-uniformed officers is about 17% of the uniformed police officers (SPF, 2018). The selection was designed to mitigate the possibility that any significant variation in the responses received is to be attributed to the difference in representation and perceptions of the service schemes.

It was also noted that 77% of the participants for this research were male and 23% were female, which has a similar proportion as the gender ratio of the officers in the SPF (Chandramohan & Amsyar, 2019). Gender representation is not expected to influence the result, as there is no indication from the previous research to suggest that gender affects the performance of KM (see Section 3.3.2).

On average, each participant took part in 4.4 job rotations, which exceeded the requirement of a minimum of two rounds of job rotations for this study. The additional rounds of job rotations each officer had gone through suggest that the participants would be able to draw from a wider range of their experience to offer a more holistic overview from the various SPF departments they had previously worked in.

In terms of the representation of the departments in the SPF, the participants came from 18 out of the 38 departments (or 47%), which offered the diversity of the experienced culture across a range of departments (see Figure 3.5). In conclusion,

their descriptions have matched the selection criteria for this study outlined in Section 3.3.2, and their profiles were summarised in Annex C.

Staff Departments	
Inspectorate and Compliance Office	Administration and Finance Department
Operations Department	Community Partnership Department
Public Affairs Department	International Cooperation Department
Manpower Department	Police Licensing and Regulatory Department
Planning & Organisation Department	Police National Service Department
Police Logistics Department	Training & Capability Development Department
Police Technology Department	Centre for Protective Security
Volunteer Special Constabulary	Digital Transformation Department
	Internal Affairs Office
	Service Delivery Department
Specialist Staff Departments	
Police Intelligence Department	Commercial Affairs Department
	Criminal Investigation Department
Specialist & Line Units	
Airport Police Division	Gurkha Contingent
Protective Security Command	Home Team School of Criminal Investigation
Special Operations Command	Police Coast Guard
Traffic Police	Public Transport Security Command
Tanglin Police Division	Police Security Command
Bedok Police Division	Police Training Command
Jurong Police Division	Central Police Division
Woodlands Police Division	Clementi Police Division
Ang Mo Kio Police Division	

Note: The boxes on the left (highlighted in blue) indicate the participants' departments when the interviews were conducted

Figure 3.5: Summary of the Participants' Departments

Inviting the participants to take part in the interviews was not without challenges. First, the invitees either declined the invitation or they refused to reply to the researcher's written request. For the others, they expressed an interest in participating but no interview was realised as they did not respond to the follow-up requests to schedule for an interview. Second, many of the participants were cautious when they were approached to participate in the study. The common

questions asked were whether the relevant departments had approved for this research to be conducted (the invitees were aware of the need to maintain information confidentiality) and whether they would be identifiable through their comments.

Those who eventually took part in the interviews acknowledged the researcher's explanation that prior approval had been sought from the relevant authorities in the SPF and their identities would be kept confidential as per the ethics statement mentioned in Section 3.6. Others declined the invitation as they were concerned that their views would be taken against them despite the assurance given by the researcher that they would not be identifiable in the report, as the findings would be presented collectively. The behaviour exhibited by the invitees highlights the resistance to make controversial comments as there were fears that their careers could be jeopardised should their views be perceived to be criticising the organisation, which postulates the risk-averse culture in the organisation. Having said that, since the invitation for this research was not broadcasted openly, there was no evidence to suggest that the participants volunteered themselves as they wanted to voice their opinions or express their support towards a specific viewpoint. Also, since the participation was voluntary, the refusal to take part should not be construed as the unwillingness to critique. Conversely, the willingness to take part should also not be presumed that the participants were inclined towards offering positive opinions, as the findings showed that a range of responses have been collected.

The participants were able to relate closely to the research topic by elaborating their views and citing practical examples to support their opinions. The use of English as the communication medium was not an issue for the participants as they appeared to be comfortable using the language to express themselves. While many of the participants were able to draw references from their experience to support their opinions, it was recognised that the majority tend to focus primarily on their current portfolio or the most recent encounters when expressing their views. This was evident from the examples cited by the participants when supporting their viewpoints and it could be due to their familiarity with the current scope of work as compared to the functions performed in the past. The limited

references to prior experience are not critical as the participants were drawn from different departments and units in the SPF and they were performing in different levels and functions, which offers the diversity and depth required for this study. The preference to focus on the most current portfolio also signalises that the KM practices performed and experienced by the participants were generally consistent regardless of their positions or the departments in which they had worked.

The evaluation of the participants' profiles in the previous sections shows that they have exposure to the experienced phenomenon to be studied. The following section would outline the experience of the data collection phase and the challenges faced in the process.

3.4 Research Instruments: Selection and Justification

The validity of qualitative research can be interpreted as the trustworthiness, authenticity and credibility of the findings (Creswell, 2008:191). Moreover, this involves specific procedures to be adopted to assess the accuracy of the findings and offer confidence to the audience (ibid:191). The high level of validity can also be achieved through clarifications of the questions posed and meanings of the responses besides investigating the research problem from different angles (Saunders *et al*., 2009:327).

Creswell (2007:129, 2012:212) identifies four categories of data for qualitative research: observations, interviews, documents and audio-visual materials. For this research, semi-structured interview and document review would be adopted for data collection. Both techniques would be used to collect data and from varied sources to achieve the objective of triangulation and to give confidence that the findings are of a high level of validity. Clarifications would also be carried out carefully during the face-to-face interviews to ensure that the participants have fully understood the questions posed to them. Should there be ambiguity or lack of clarity in their responses, clarifications would be sought during the interview session. The confidence of the validity of the data collected is further enhanced by the review and confirmation of the transcripts by the participants.

Personal observation may not be suitable for this research as there may not be the opportunity to observe the occurrences over an extended period. Furthermore, the occurrences may not be repeated, thereby raising the question of the meaning and significance of such ad-hoc observations and the applicability to this research. Audio-visual materials have also been excluded as it is uncommon for documentation related to work processes to be stored in the audio-visual format; such materials would have been transcribed into documents for ease of storage and retrieval. It is expected that the comparison and integration of the data obtained from the different sources and methods would enhance the accuracy and creditability of the findings (Creswell, 2012:259), improve the data quality and offer a more comprehensive understanding of the research problem to be studied.

3.4.1 Semi-Structured Interview

The primary data collection method would be based on one-to-one, face-to-face semi-structured interviews with the identified participants. This mode of interaction is personalised and private as compared to a group interview or focus group setting, which is expected to encourage a higher degree of openness from the participants as they are less likely to feel pressurised from the presence of other participants or compromise their views as a result of groupthink.

Other than face-to-face interviews, the use of phone or email interviews have also been considered, but these approaches are less favourable as the researcher would not be physically present to address the queries that the participants have or to clarify the meanings of their responses. This may affect the consistency of the data collection approach and impact on the quality of data collected. Furthermore, the absence of proximity contact means that there is no opportunity to observe the body language of the participants for signals that may warrant further probing. Despite the limitations, these alternatives approaches are still valid to achieve the intended purpose but would be used only if the participants have indicated their discomfort with the face-to-face interview setting or if they have expressed their preference to respond at their own time and pace in the absence of the researcher.

An interview guide was developed to provide consistency in the sequence and delivery of the questions for all the interview sessions. The standardised material would ensure that all the participants are informed using the same set of background information and to get their consent (see Annex A) before the commencement of the interviews. The interview questions were developed based on the research objectives to systematically examine the occurrence of the KM practices and events from the perspective of the participants, so as to appreciate the underlying causal mechanisms of the KM culture and the performance of KM in the organisation. The questions were structured to be open-ended to elicit rich and detailed responses from the participants. The free-response section before the conclusion of the interview would solicit further responses from the participants that have not been captured. Field notes would be taken during the interviews, and the responses would be voice recorded (with the consent given by the participants) to facilitate transcribing of the details and subsequent analysis. The participants would then review and confirm the transcripts to ensure that the contents are accurate, and participants are allowed to make changes where necessary. The review process provides an added layer of assurance for the validity of the responses solicited. Even though the interviews are conducted in English, the participants can express themselves in Mandarin or dialects if necessary.

The suitability of the interview questions to address the research aim and question was assessed in the pilot study (see Annex B1). The findings revealed that the participants did not highlight any difficulty in understanding the questions posed to them. There was also no observed deviation in the interpretation of the questions by the participants, although they have suggested that the questions could be refined to improve the clarity. The following questions have been revised for the main study:

Q1 & Q2: The participants tend to state the tools and resources used when describing the KM activities practised. Therefore, there is value to refine the questions to further differentiate the intention of the questions. The questions have been rephrased into *'Are you familiar with KM and its practices in the SPF? What are the KM activities that you practice now*

and in your previous postings?' and *'Are there processes (e.g. Standard Operating Procedures (SOPs), directives) that you follow/observe when performing the KM activities? What are the resources that you use?'*

Q6: The participants asked about the focus on this question as it was unclear to them what the definitions of public and private goods are. The question has been reworded into *'How would you describe the KM culture in the SPF? How does the KM culture influence your attitude and practice of KM in the organisation?'*

Q10: This question is to find out if the attitude of the staff towards KM is affected by knowing that their duration in a position is short-term as they will be subjected to job rotations. The question has been revised into *'Do you think that the regular job rotations have influenced the attitude of the staff in practising KM, as they know that they will not be in a position for long and the accumulated knowledge in the current post may not be used in their next posting?'*

Q11: To emphasise the importance of knowledge continuity after job rotations, the question has been rephrased into *'Do you think that knowledge is retained sufficiently and transferred effectively such that there is knowledge continuity after job rotations?'*

Q14 & Q15: The participants' feedback indicates that the questions appeared to be repetitive as both are asking if the internal departments are willing to share knowledge. Both questions will be combined into *'Do you think that the SPF departments are open and willing to share knowledge with one another?'*

See Annex B2 for the revised questions.

3.4.2 Document Review

The document review aims to achieve the following objectives. First, the document review seeks to amalgamate the findings from the interviews and the claims from the participants about the business processes. This is to avoid reliance on only one source of data and achieve data triangulation by combining multiple data sources. Second, it is expected to offer an indication of the level of integration of KM practices with the business processes in the organisation. Is KM in the SPF a tightly knitted part of the entire process or a residual task? The documental review seeks to establish the documented KM practices and processes in the organisation. As a public sector organisation and a law enforcement agency, the SPF's operations are guided by the standard operating procedures and directives. It is, therefore, necessary to review the documents related to KM to appreciate and understand how the process is practised in the SPF.

Due to the confidentiality of the SPF internal documents, the researcher is unable to disclose the contents or share in details of the KM documents or processes that are available in the organisation. Nevertheless, it is possible to appreciate the KM documents by reviewing the publicly accessible publications produced by the organisation to corroborate the findings from this study. This would ensure the accuracy and reliability of the references used.

With the identification and justification of the sources of data applicable for this study, the following section would detail the process from data collection to analysis using the thematic analysis approach.

3.5 Analytical Process/Tool Selection and Justification

For this research, the selected analytical approach to data is by thematic analysis. It is a flexible technique with fewer specified procedures, permitting the researchers to tailor the approach to match their requirements (King, 2004:257). Thematic analysis is commonly used in qualitative research to identify, analyse and report recognised themes or patterned responses from and across the data

collected (Braun & Clarke, 2006:79,80,82; Maguire & Delahunt, 2017:3353). A theme is a pattern that captures something of significance about the data and/or research question, which the researcher has identified to be important to his/her interpretation (King, 2004:257; Maguire & Delahunt, 2017:3356). The thematic analysis approach is useful for summarising the key features of a large data set and can provide an insightful analysis that addresses the research questions (Braun & Clarke, 2006:97). Also, it enables the researcher to determine and link the relationships between concepts and opinions and compare with data that has been gathered (Alhojailan, 2012:40). Finally, thematic analysis encourages a structured approach towards the handling and analysis of data, which can produce a clear, organised, final account of the study (King, 2004:268).

This research adopts the thematic analysis model by Miles and Huberman (1994) (see Figure 3.6). The model is chosen as the suggested format of analysis from coding to conclusion drawing is structured into distinct stages, which facilitates the ease of application. The recommendation of the use of visual aids, such as matrices to present the data, is useful as it not only enhances the illustration of the key findings, it also helps to identify and highlight the repeated responses without the need for counting. Miles and Huberman (1994)'s thematic analysis model shares similarities to that of Braun and Clarke (2006) as both call for the researcher to be familiar with the raw data to identify the useful themes/conclusions subsequently. Also, both suggest the use of visuals for analysis. For instance, Miles and Huberman (1994) suggest the use of matrices and charts whereas Braun and Clarke (2006) recommend the use of thematic maps. However, the process of analysis differs between both approaches as Miles and Huberman (1994:11) posit for the data to be summarised to create focus, whereas Braun and Clarke (2006:88) suggest that the verbatim account of the transcripts be used.

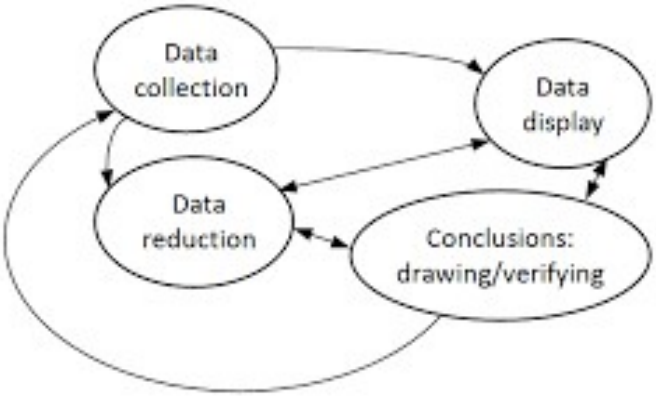


Figure 3.6: Components of Data Analysis (Miles & Huberman, 1994:12)

After the data is collected, the model begins with *Data Reduction* by simplifying, selecting and organising the raw data to summarise the details for ease of analysis and interpretation (Miles & Huberman, 1994:11). The next step, *Data Presentation* involves arranging and presenting the organised data into visual aids such as matrices, charts or networks to facilitate the organisation of thoughts and to derive the conclusions (ibid:11). The final stage is *Conclusion Drawing/Verifying*, where the deductions are drawn from analysing the results from the data reduction and data presentation stages and verified through reviewing of the raw data and field notes to ensure the validity (ibid:11). The steps are repeated to identify the rest of the themes.

Careful consideration has been given to alternative approaches such as content analysis. However, content analysis is not the most appropriate approach as the identification of significance is based on the frequency of the themes (Floersch *et al*., 2014:409). Although this approach is statistically convincing, it may not offer actual representation as the frequency of the themes is derived from the coding strategies which lacks the flexibility in examining the contents of the data beyond the number of occurrences. Braun & Clarke (2006:82) also emphasised that the significance of a theme is non-quantifiable; it does not lie in the frequency of appearance but depends on its prevalence in the dataset, determined by whether it picks up an essential element related to the research question. Furthermore, contextual details may also not be captured effectively from this approach. There

is consensus among the scholars that the ability to identify the themes is a subjective call as it depends on the judgement of the researcher (Patton, 2002:467; Braun & Clarke, 2006:82) and the prior experience with the experienced phenomenon (Floersch *et al*., 2014:409). The above conclusion is valid for this research as it takes someone with a reasonable appreciation of the culture and running of the organisation to filter and recognise the key themes from the rest of the findings.

Narrative analysis has been explored but is also deemed unsuitable for this research. This is because narrative analysis focuses on the deeper meanings and evaluations of the life situations of the participants as recounted through their personal stories, whereas the research topic involves the participants relating experiences from their interaction with the KM culture. It is reckoned that such encounters that are work-related are more intuitive and direct and may not invoke the same level of inner thoughts as compared to topics that are more personal to the participants.

To sum up, thematic analysis is considered to be the most appropriate approach for this study as it provides a structured framework for the processing of large volume of textual data systematically. The approach facilitates the detection and identification of factors and variables that influence issues highlighted by the participants (Alhojailan, 2012:40). Thematic analysis also offers a broad overview of the data and provides the contextual framing for subsequent analysis (Stephens & Breheny, 2013:5,20).

This section has presented an overview of the analytical process to be adopted. The following sections would describe the key steps involved in the approach and the application in this study.

3.5.1 Data Collection

Data collection was carried out by way of semi-structured interviews and reviewing of related KM documents, as outlined in Chapter 3.4.

The pilot study serves to evaluate the interviewing practice and delivery prior to the main study. A learning point from the pilot study was about the delivery of the interview. The first interview session took 95 minutes as the participant was observed to have difficulty trying to focus, which led to frequent requests to repeat the questions. For subsequent sessions, a printed set of questions was provided to the participants for reference. This has helped them to focus, which in turn improved the delivery to no longer than 50 minutes per interview.

For the main study, the semi-structured interviews were conducted from June to September 2019 using the interview guide in Annex B2. There was no contamination of data from the pilot study as a fresh set of data was collected from a different set of participants. The document review was also carried out during the same period to corroborate the findings and identify areas of possible triangulation.

While the pilot study has identified the potential issues that may be faced in the main data collection stage, a few others remain uncovered. One of the key issues which surfaced during the interview sessions was that some of the participants had difficulty trying to relate the KM activities that they have practised in their course of work, as they were unsure if what they did was considered KM-related (see Section 4.2.3). As a result, the researcher had to briefly explain what KM is about to all the participants who had sought clarifications, using the definition by Girard and Girard (2015:14) (see Section 2.4) to maintain consistency in the replies. This proved to be useful as it helped to bridge the knowledge gap and the participants were able to respond to the subsequent interview questions without much difficulty.

A critical element of the post-data collection process is the transcribing of the verbal responses into transcripts. The success of this step heavily depends on the quality of the audio recordings, particularly if the interview environment is less than ideal. In the pilot study, a technical issue related to the quality of the voice recordings was encountered, as there were occasions where parts of the recordings were inaudible because of the background noise and this has led to difficulty in transcribing the voice recordings. In the main study, the placement of the

recording device was carefully considered as it needs to capture the audio of the interviews optimally while not causing the participants to feel uncomfortable with the presence of the device. The presence of the voice recorder could cause the participants to feel uneasy as they were constantly reminded that their conversation was being recorded, although their consent for the audio recording was sought before the commencement of the interviews. To overcome this issue, the device was blended into the environment, such as placing it under some papers or a tissue box and keeping it close to the participant to capture the conversation. The participants were aware of the location of the recording device as the recording function was turned on with their knowledge before putting away and they were reminded again of the recording device upon concluding the interviews. The result was positive as the recordings were sufficiently clear for transcribing and the participants appeared to be at ease throughout the interview sessions.

3.5.2 Data Reduction

The *Data Reduction* phase aims to process the transcriptions by selecting, focusing, simplifying, abstracting and transforming the data (Miles & Huberman, 1994:10), such that the data is suitable for use in the subsequent stage. The present state of the data, currently in the form of transcripts derived from transcribing the voice recordings, was raw and untreated. Even though the responses were recorded according to the questions asked during the interviews, the data was not ready for analysis for some reasons.

Firstly, the participants may not have answered the questions systematically. For instance, some of them were observed to be responding to a question and subsequently digressed to an earlier question as they had additional comments to add. As a result, the contents of the transcripts could be disorganised and the data needed to be sorted, such that the responses would be aligned to the questions asked to facilitate subsequent analysis.

Secondly, some of the participants were more vocal and offered a lengthy and detailed description of the narratives to support their opinions. Although the specifics were useful for the researcher to appreciate the context that the

participants were trying to convey, the full details were not necessary and could be summarised to retain the gist to support their reasoning. The summarised points allow the researcher to be more focused when dealing with a large number of details.

Lastly, it was observed that the participants considered the researcher to be a colleague and an insider; they appeared to be unreserved during the interviews by supporting their opinions with examples derived during their work. As a result, some of their accounts contained sensitive information of the organisation that was required to be kept confidential. Such details would have to be withheld or removed by the researcher to comply with the research ethics declared in Section 3.6.

The above data reduction process was repeated for all the transcripts. The review process was time-consuming as the researcher had to go through every transcript in detail, and the entire review process took a few weeks. This may result in inconsistency of the thought process of the researcher, which may differ over time. To ensure the uniformity of practice for the data reduction approach, the researcher went through multiple iterations of the process by reviewing the responses across the different questions in the same transcript, as well as comparing across the transcripts. At the end of this exercise, the refined transcripts were ready to undergo the next phase of the data analysis – data presentation.

3.5.3 Data Presentation

In the preceding section, the steps and the challenges involved in the data reduction process of the raw transcripts were discussed. The objective is to simplify and organise the data to be suitable as inputs for the next stage of the data analysis, *Data Presentation*. This stage involved the use of visual aids to present the data for ease of analysing and interpretation, to enable the drawing of conclusions and actions for the next stage (Miles & Huberman, 1994:11).

For this study, a simplified variant of the Conceptually Clustered Matrix (Miles & Huberman, 1994:127) display was chosen. Instead of cluttering several research

questions and their solicited responses on a single matrix, the array for this study was generated using the identified themes to a specific phenomenon/issue to be examined on the vertical axis, against the participants who offered the respective responses on the horizontal axis. This format offers a comprehensive presentation of the data to be examined and it is scalable to accommodate additional themes and participants without the need for further rework on the current dataset. A sample of the matrix display is shown in Figure 3.7.

The first step was to identify the themes in the transcripts and list them in the format as shown in the diagram above. The researcher chose to analyse the sentences over individual words as the latter is insufficient to deduce further meaning from the context. A transcript was reviewed multiple times to identify the textual units that provided the insights to address the phenomenon to be examined. The textual units were extracted and tagged to the participant who gave the response with an 'X' on the horizontal axis. The process was repeated for all the transcripts and arranged in order according to the serial number assigned to the participants.

The next step was to identify the theme in each of the sentences that the participants were trying to put across. For the more straightforward responses, the themes could be recognised from the keywords that were repeated across the responses, while the others have to be abstracted based on the researcher's interpretation and the context of the messages. The above iteration was carried out for an identified phenomenon to be addressed and the whole process was repeated for all the questions that were asked in the interviews, separated by tabs in the Excel worksheet. A graphical process to identify the theme is presented in Figure 3.8.

The graphical display step was completed when all the extracted responses were associated with their themes and marked out based on the participants who offered these comments. The results from this stage would be used to draw the conclusions and collaborate the findings, to be elaborated in detail in the following section.

Question 2	Theme	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	P21	P22	
Are you familiar with KM and its practices in the SPF? What are the KM activities that you practice now and in your previous postings?																								
there are no fixed processes to follow as the practice (of knowledge management) is intuitive.	Unfamilar with KM and practices		X																					6
not really familiar with how KM is done as I am not really involved in the KM process	Unfamilar with KM and practices						X																	
am not familiar with KM in the SPF sense	Unfamilar with KM and practices												X											
do not have much knowledge of KM	Unfamilar with KM and practices													X										
Not very familiar with practices	Unfamilar with KM and practices														X									
not really familiar with KM and the practices	Unfamilar with KM and practices															X								
have heard of KM practices before	Familar with KM and practices							X																5
quite familiar with KM	Familar with KM and practices										X													
I do know of some of the practices	Familar with KM and practices											X												
To an extent, yes.	Familar with KM and practices																				X			
Only somewhat familiar with KM	Familar with KM and practices																					X		
archive my emails... filing of submission papers in archive folders	Knowledge archive/retention	X																						16
archiving of emails	Knowledge archive/retention		X																					
upload the directives and emails and archive the information there where possible	Knowledge archive/retention			X																				
storage and archive of documents	Knowledge archive/retention				X																			
KM to me is more of archiving and retaining the information	Knowledge archive/retention					X																		
I keep (archive) whatever I think is useful	Knowledge archive/retention							X																
to document certain procedures that are currently in practice	Knowledge archive/retention								X															
collate feedback from the ground and management level ... they will put them into a document	Knowledge archive/retention									X														

Figure 3.7: Matrix Display for an Identified Theme

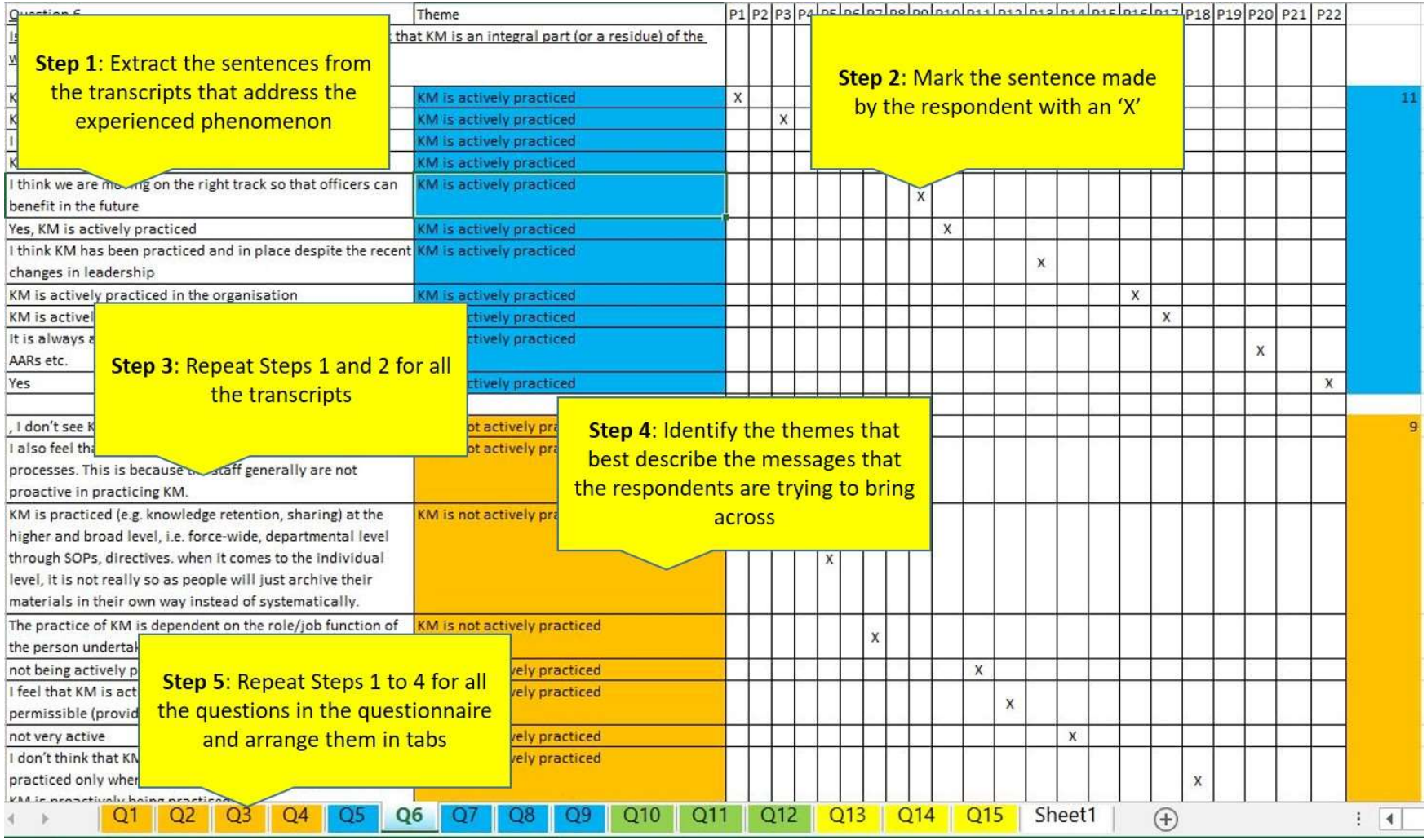


Figure 3.8: Graphical Process to Identify the Themes

3.5.4 Conclusion Drawing

The final step of the thematic approach was *Conclusion Drawing*, where the deductions were drawn. The researcher adopted a few tactics with reference from Miles and Huberman (1994:245), such as noting patterns and themes, clustering and subsuming particulars into the general, counting and observing relationships between variables to generate the conclusions based on the generated graphical data and taking into consideration the research topic.

First, the deductions were drawn from noting the patterns and themes presented in the data display. From the Excel worksheet generated, the responses were grouped according to the identified themes and this offered a first cut of the possible conclusions that could be drawn from the data presented.

The second technique employed was clustering and subsuming particulars into the general. As the researcher became more familiar with the data, he began to recognise the relationships between some of the identified themes. For instance, it would be more meaningful to cluster themes that are subsets of each other than to keep them as separate themes.

Third, counting is used to illustrate the frequency of occurrences of the responses. When interpreting the numerical data and charts, it should be noted that there is no restriction on the responses that the participants can offer (i.e. they can choose not to answer or they can give multiple responses to the same question) and they are not expected to take sides for any viewpoint (i.e. they can again choose not to answer or they can take one or more sides). As a result, there could be occasions where the total number of responses may exceed the total number of participants. However, there would not be double-counting from the same participant as similar comments related to a common theme were counted as a single response.

Another tactic employed in drawing the conclusions is to observe the relations between variables. The objective is to identify if there is any relationship between the variables being examined. The deductions were compared with the literature

base to determine whether the experienced phenomenon in the SPF is consistent with past research or the possible reasons that could have led to contrasting results.

The conclusions were derived carefully based on empirical findings. This was done by explaining the results and their meaning in relation to the research question and the KM context the research is established within. It should be noted that the results from this study that were consistent with the conclusions from past literature would be highlighted, and those which contradict observations and patterns would also be discussed. For the latter, the differences in the background information were reflected as the context could have resulted in a different outcome, which could contribute to a different perspective and practice. Thereafter, the deductions were assessed to establish their generalisability within and outside of the SPF. The above process was repeated until there was no further meaningful conclusion to be established.

The process of drawing the conclusions did not actually start at this stage but at the data collection stage, with the researcher interpreting the findings by noting regularities, patterns and propositions (Miles & Huberman, 1994:11). To derive the conclusions solely from the identified themes is only going to offer superficial inferences, as there is no reference to the organisational context. This is where the position of the researcher as an insider is an advantage as he would be able to interpret the findings based on his experience of the issues being studied and apply his understanding of the context as a member of the organisation. Nevertheless, throughout the data analysis process, the researcher should maintain openness while looking out for the possible conclusions that may be prefigured (ibid:11). It is easy for a researcher to claim to strive for full objectivity to be achieved to minimise the researcher effects when conducting the study, as highlighted in Section 6.6. In reality, there would be anticipations for particular outcomes based on the researcher's status as an insider, his/her experience and encounters in the organisation. Eventually, the outcome would speak for itself through the responses received; this is a constant reminder of the need to maintain an open mind and scepticism until the very last stage. The reflection of the researcher's positionality for this study is elaborated in Section 6.5.

To facilitate the data analysis process, the researcher had attempted to use qualitative data analysis software such as NVivo (by QSR International) to organise, code and analyse the transcripts. A set of sample data was used as inputs to evaluate the usefulness of the software to generate the expected results. However, the results derived from the software were incomplete as the search was dependent on the keywords identified by the researcher; the software was unable to consider alternative expressions or phrases and give a positive return that has the same meaning as the keywords to be searched. As the researcher was not very familiar with using the software, a considerable amount of time and effort was spent on learning how the software works, configuring the parameters and troubleshooting the errors that surfaced. After much deliberation over the potential effectiveness of using the software compared against performing manual analysis, the researcher decided to adopt the manual data analysis process over the use of computer-aided software for this study. The researcher shares the same view as King (2004:253) that the software is unable to analyse data beyond supporting in the analysis process. By performing the analysis manually, there is greater control over the process; it enables the researcher to inspect the data thoroughly and consider the context within, an important consideration that the software is unable to achieve satisfactorily.

Thematic analysis as the research method is assessed to be suitable for this research. The method is flexible as it can be modified and applied in this research. It enables the researcher to adopt a systematic approach to summarise the large data set into useable themes and examine the perspectives of the participants to identify the similarities and differences, thereby generating insights from the collected data. On the other hand, this method is time-consuming: to identify the meanings within the context of the qualitative data requires the researcher to review every transcript in detail to establish the messages that the participants were trying to convey. Furthermore, there is a need to compare across transcripts to ensure consistency in the thought process, which led to an even longer time required for the analysis. Nevertheless, this is expected from conducting qualitative research and the need to familiarise with the data so that meaningful insights can be derived.

Similar to any other research, outliers are also present in this study and how to deal with the anomalies varies with the approach to data analysis. Outliers are cases that are considered to be not belonging to the data (Etikan *et al*., 2016:2). For quantitative research, the outliers may lead to inflated error rates and substantial distortions of parameters and statistic estimates (Osborne & Overbay, 2004:1). These variations are likely to be dismissed by the statisticians, as such exceptions are considered as errors when the objective is to describe the typical (Bazeley 2004:8). Also, the exceptions are generally eliminated from statistical analysis due to the significant yet somewhat unjustified influence they might have on statistical results (Phoenix & Orr, 2017:272). However, such practices of eliminating data can be regarded as exhibiting biasness, as the data is deliberately manipulated to favour the intended hypothesis (Osborne & Overbay, 2004:1; Šimundić, 2013:14).

Even though the degree of analytical scrutiny is lesser for qualitative research for the omission of outliers, there are implications for the rigour and creditability of the conclusions that are drawn from it (Phoenix & Orr, 2017:272). In a qualitative approach, the outliers may arise due to the variability of options from the data sources (Osborne & Overbay, 2004:3). The variations in data represent plausible manifestations of diversities that differ from the dominant narratives within the data (Phoenix & Orr, 2017:280). These alternative views are used to shape the theories being developed (Bazeley 2004:8), or they can be an inspiration for inquiry as these may shed light on an important principle or issue beyond the central themes (Osborne & Overbay, 2004:3). Nevertheless, Phoenix and Orr (2017:280) emphasised that identifying the central themes "could be the first rather than final step of data analysis", while the examination of outliers should also be considered to avoid discounting diversity or exceptions in the pursuit of prevalence and patterning.

For this research, which is qualitative, it is unlikely that the presence of outliers is due to errors (e.g. incorrect data entry) in the data collected as the details are more descriptive than numerical. Unlike the case of quantitative research where the exceptions are likely to be disregarded, there is a need to consider whether those data contain valuable information that has important implications, which could

have been identified by a handful but overlooked by the majority. The outcome would depend on the researcher's interpretation and his experience with the organisational culture and processes as a member of the organisation.

The discussion on the research methodology so far has focused on the process and approach, from the identification of the philosophical position to the research techniques. A critical aspect of research is about research ethics, which calls for strict compliance to ensure data and identity confidentiality. The details related to the research ethics would be discussed in the next section.

3.6 Research Ethics

The research fully understands the importance of maintaining the highest level of research ethics in every stage of the research. This includes the need to maintain a strict level of data confidentiality, which the researcher had undertaken by undersigning the Ethics Approval Form. Consent had been given by the relevant authorities in the SPF before the commencement of the research, explaining the purpose of this research and the level of access required (see Section 3.3.1).

Consent had also been sought and obtained from the participants before the commencement of data collection. It was made known to them that their autonomy is respected, and any risk involved would be made known to them. The participants were assured that their participation in this research is voluntary, and they could withdraw from it at any time. The aim and objectives of this research and the procedures were explained to all participants, so they fully understood the need for the study. Refer to Annex A for the consent form.

The responsibility as a researcher is to protect the anonymity and confidentiality of the participants so that their participation in the research should not subject them to any harm or jeopardise their career (non-malfeasance). All identifiers had been removed from the data collected, and results that may lead to the identification of the participants had been generalised or aggregated. The participants were assured that their views would be kept confidential and to be

used for the research only, and in no opportunity that such information would be revealed to any party, including the SPF.

As a member of the SPF, he understands the work nature and sensitivity of information handled by the organisation. Therefore, only desensitised information that is generic and assessed to be suitable to be made available to the public were included in the thesis. These include materials that can be found in the public domain, such as publications accessible from the SPF website, articles and news reports available on the internet or library. Also, only opinions offered by the participants that do not contain sensitive information or may compromise the reputation or operations of the organisation have been included in the report.

3.7 Summary

This chapter has identified and addressed the choice of research paradigm, the methodological approach and the associated methods to be used for this research. The choice of data source, sample size and research instruments for data collection and the analytical process have been introduced. Besides, the considerations and steps to be taken to minimise the potential risks and issues that may arise from this research were discussed.

The philosophical assumption and outlook of what constitutes reality define the angle of examination, the approach and method of conducting the research. It is critical for the researcher to state his/her philosophical position at the onset as that would guide the choice of approach and determine what is to be established from the research findings; failing to adopt the appropriate position may end up in the mismatch between the ideology of the researcher and the reality he/she seeks to determine.

The sampling of the population is important as the findings of the research depend on the choice of the participants, as it would have consequential effects in the subsequent stages of the research. The participants should be chosen because they are in the best position to relate to the experienced phenomenon to address the

research question adequately. For a qualitative study, width and depth of the study are sought after than generalisability, which the former can be achieved without a large sample size if the sample is homogeneous and with the setting in of data saturation. This is critical, otherwise, the effort and resources to collect and analyse the data would be enormous if a large sample is needed for a qualitative study.

The diversity of the participants offers a comprehensive representation of the units in the SPF. Coming from different backgrounds and departments, the participants' accounts were more holistic and provided a wider perspective of the experienced phenomenon in different settings and scopes of work. The wide range of participants has balanced against the lack of sharing of experience by the participants as most of them focused their responses on their most current portfolio, although their accounts of the experience practising KM over time would have provided deeper insights of how the subject has evolved.

The data collection process involved soliciting responses of the participants' perspectives of KM in the organisation. The process would have been faced with more challenges in the main study if not for the learning points from the pilot study that have helped to refine the interview questions and improved the delivery of the interviews. Thematic analysis was the chosen method to analyse the transcript of the interviews. It offers the flexibility to be adapted for this research and provides a systematic approach to reduce, organise and present the qualitative data into identifiable themes to facilitate interpretation by the researcher.

Conducting research is analogous to managing a project and risk management is a key aspect in project management; the early identification of the risks and issues and how they could be avoided or mitigated are of the essence. On a related note, the effects of bias and the argument for lack of validity of qualitative research would continue to be challenged. It is anticipated that taking proactive steps would minimise the influences and exercising reflexivity would address the effects of preconceptions that could have been introduced in the research.

The pilot study has provided a qualitative assessment of the various aspects of the data collection process and data analysis before the main study. The feedback from the participants suggested changes to refine the interview questions so that the responses could be more focused and able to address the research problem more appropriately during the main study. It also provided a valuable opportunity to evaluate and strengthen the researcher's interviewing practice and delivery of the interview sessions in preparation for the main study.

In the next chapter, the findings from the main study would be presented and discussed.

CHAPTER 4 – RESEARCH FINDINGS

4.1 Introduction

The results of this thesis would be presented in two chapters as outlined in Section 1.5. This chapter presents the data and analysis of the interview transcripts to illustrate the identified themes from the data collected. In Chapter 5, a detailed discussion of the findings would be presented, highlighting the implications of and likely explanations for the experienced phenomenon to address the research aim and question of this study (see Section 1.3).

The conceptual framework outlined in Section 2.7 would be the blueprint for the discussion in this chapter (reproduced in Figure 4.1).

Figure 4.1: Conceptual Framework (author's own)

This research set out to explore the KM culture and the relationship, if any, with the performance of KM in the SPF. To achieve the research aim and address the research question, the research objectives in Section 1.3 have been structured to systematically examine the practice of the influencing factors and the performance of the KM practices as perceived by the participants.

The first research objective is to establish the KM context in the SPF by examining how the participants perceive the purpose of knowledge in the SPF. The findings would reveal the participants' awareness of the subject of KM and the level of

activities that were performed to support the practice of KM in the organisation. This would provide the context to comprehend the subsequent findings in this study.

With the understanding of the KM context, the study addresses the research objective of investigating how the KM culture is perceived by the participants, through the KM functions that are practised in the organisation. The KM culture has been established in past literature to be a key element that influences the performance of KM in the organisation (see Section 2.6.2). The study also seeks to identify the level of motivation to practice KM and the measures that could be implemented to further encourage the staff members towards the practice in the organisation.

Past literature has established the link between job rotations and its influence on the management of knowledge (see Section 2.6.3). As the SPF practices regular staff movements as part of its human resource practices, the study aims to investigate the perceived level of knowledge continuity in the organisation resulting from the said practices, and identify the possible measures to prevent the situation from deteriorating.

Knowledge collaboration has been identified to be an influencing factor in the performance of KM (see Section 2.6.4). This study seeks to find out the receptiveness of the organisation towards knowledge sharing and collaboration among the internal departments and with the external stakeholders. Also, the challenges that impede knowledge collaboration in the organisation would be identified to determine the actions that could be taken to improve the practices.

Despite the focus on the factors above, the other factors such as technology and the management of knowledge were also taken into consideration in the analysis for a more holistic appreciation of the experienced phenomenon.

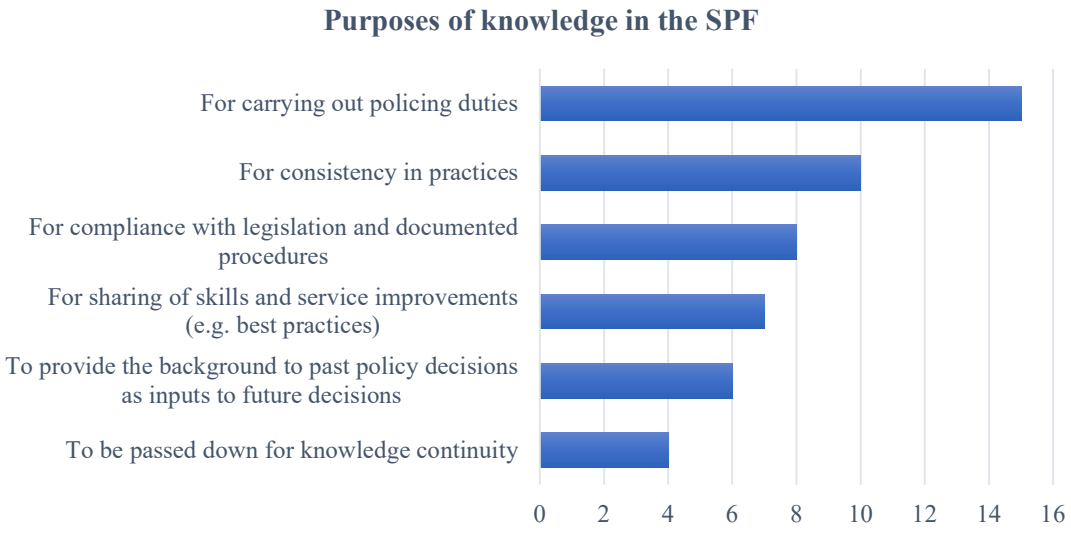
With the conceptual framework as the research approach, the findings of this study would be presented in the following sections.

4.2 Knowledge Management Context in the SPF

Before the investigation of the influencing factors that determine the perception of KM performance in the SPF as defined in Figure 4.1, an appreciation of the KM environment would provide the context to the rationale for the participants' responses in subsequent sections.

4.2.1 Purposes of Knowledge

It is apparent from Figure 4.2 that knowledge plays a critical role in policing, as it is deemed to be a critical resource necessary for the performance of policing duties as reported by 15 of the 22 participants. This point is closely related to the importance to comply with legislation and documented procedures to ensure that the actions taken by the police officers are permitted under the law and in accordance with the endorsed organisation processes, as highlighted by 8 of the 22 participants. In addition to carrying out the policing duties, 10 of the 22 interviewees highlighted the importance of knowledge to ensure consistency in practices. It is desirable for policing, which is a form of public service, to practice uniformity in service delivery regardless of where and when assistance is required from the police.



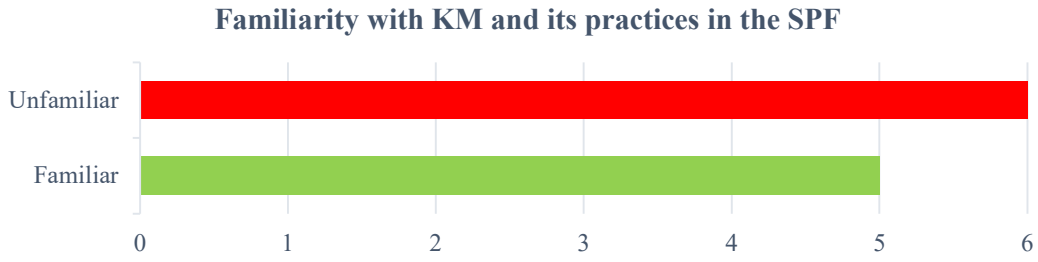
Note: Blue denotes a neutral trait

Figure 4.2: Purposes of Knowledge in the SPF

The purpose of knowledge is not only limited to the performance of frontline policing duties but also closely related to the application of staff work. For instance, knowledge was highlighted by 6 of the 22 participants to provide the background for past policies when making future decisions without the need to reinvent the wheel. 4 of the 22 participants also felt that knowledge was necessary to ensure continuity during the regular job rotations. The results highlight the importance of knowledge continuity as a result of job rotations, to be discussed in greater detail in subsequent sections.

4.2.2 Familiarity with Knowledge Management Processes

The data in Figure 4.3 reveals that 5 of the 22 participants have expressed their familiarity with KM and the related practices in the organisation, while 6 of the 22 participants informed that they were uncertain whether their actions were considered to be KM-related due to their unfamiliarity with the subject. Many of them expressed that they were not familiar with KM and the practices involved. Therefore, the low response rate for this question could be an expression of the participants' unfamiliarity with the KM subject as they chose not to provide a direct response.

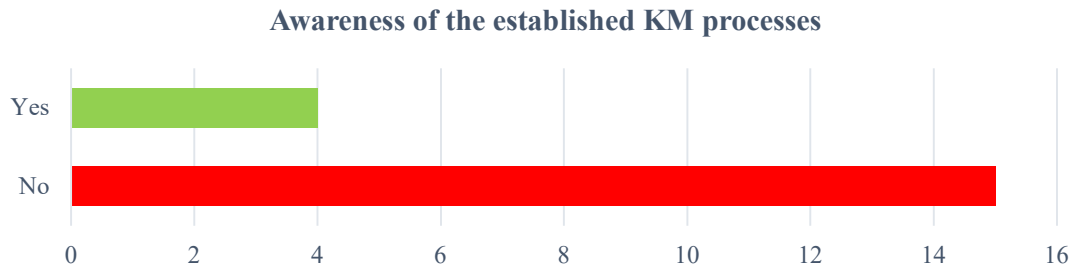


Note: Green denotes a positive trait; red denotes a negative trait

Figure 4.3: Participants' Familiarity with KM and its Practices in the SPF

Related to the preceding findings, the unfamiliarity with KM and its practices could be corroborated from the results shown in Figure 4.4, as 15 of the 22 interviewees said that they were unaware of any formal guidelines on KM practices, as compared to only 4 who explicitly mentioned that they were

cognisant of the established processes related to KM. For instance, a participant, Agnes, said that she was "unaware of any standard operating procedures governing the performing of knowledge management activities". Another participant, Tom, commented, "As for processes to follow when performing knowledge management activities, I will think it is almost non-existent". As a result, the participants informed that they practise KM at their discretion without reference to specific guidelines.



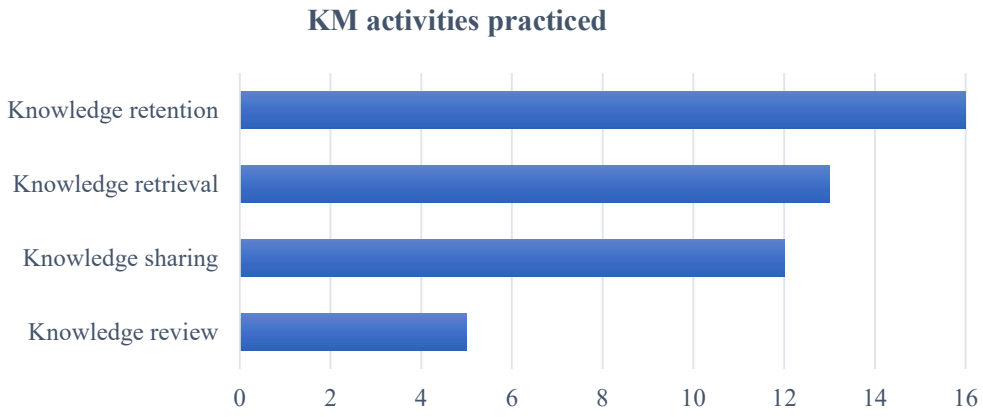
Note: Green denotes a positive trait; red denotes a negative trait

Figure 4.4: Participants' Awareness of the Established KM Processes

4.2.3 Knowledge Management Activities

When it comes to naming the KM activities that were practised in their course of work, it was observed during the interviews that many of the participants have difficulty trying to provide their responses; they were either unaware of what KM was about or unsure if the activities they performed were KM-related. It was only after the researcher's prompt (such as the definitions of KM) that the participants were able to relate to the KM activities.

The KM activities performed by the participants were summarised in Figure 4.5. Those highlighted were primarily focused on the application and review of knowledge, namely knowledge retention (16 of 22), knowledge retrieval (13 of 22), knowledge sharing (12 of 22) and knowledge review (5 of 22).



Note: Blue denotes a neutral trait

Figure 4.5: KM Activities Practised by the Participants

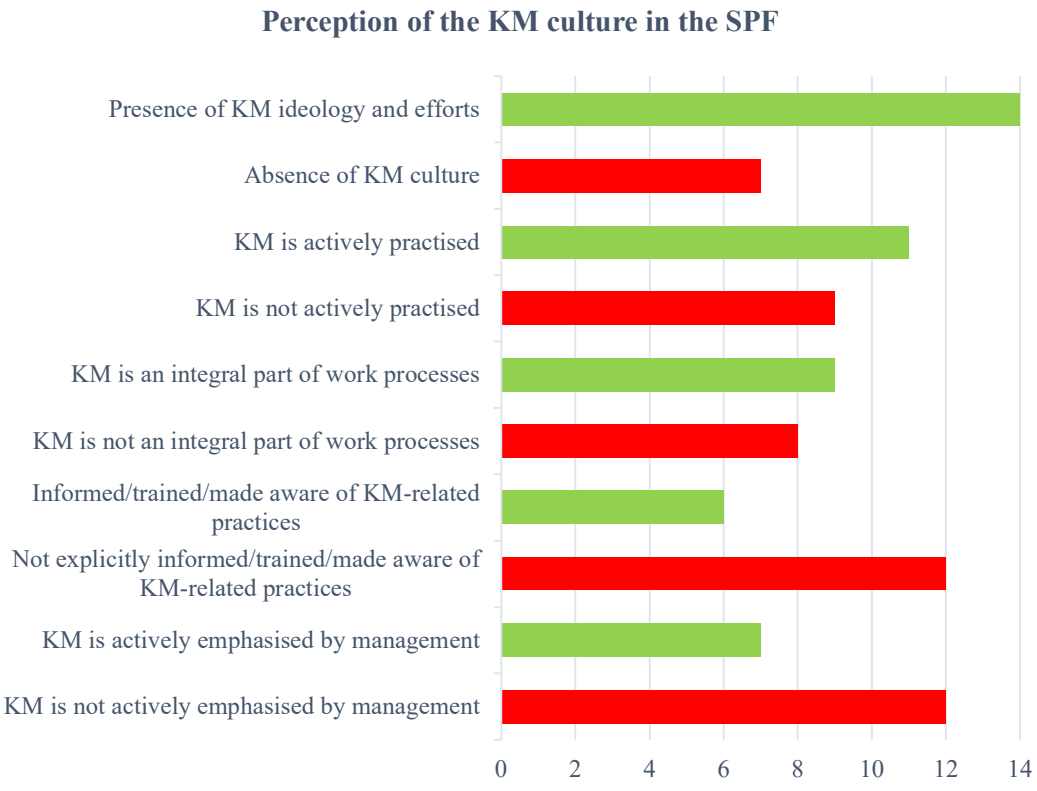
Overall, this section has addressed the research objective of examining the KM practices in the SPF and provided an insight into the KM context of the SPF by examining the perception of the purpose of knowledge and the list of KM practices performed by the participants. Despite the recognition of the importance of knowledge, it was established that there was a lack of awareness of the established KM processes by the participants to guide the performance of KM, which has led to the practice of KM at the discretion of the staff members. The unfamiliarity of the KM practices expressed by the participants has also signalled the incognizant of the subject of KM in the organisation.

4.3 Knowledge Management Culture

The preceding section examined the KM context in the SPF and offered insights into the purpose of knowledge and the KM activities practised by the staff members. To address the research objective of establishing how the participants construe the importance of and the need for KM in the SPF (see Section 1.3), the first element in the conceptual framework (see Figure 4.1) calls for the investigation of the KM culture in the SPF by examining the staff members' perspective and motivation towards KM.

4.3.1 Perception of Knowledge Management Culture

The results presented in Figure 4.6 show that 14 of the 22 participants have expressed their consensus and recognition of the presence of KM culture in the SPF. However, further examination of the results shed insights into the participants' perception of the maturity of the KM culture in the organisation: more than half of those who acknowledged the presence of KM ideology and efforts (9 of 14) also emphasised that the KM culture could be further improved. One participant, John, shared his views: "I think there is some form of KM activities practised in the organisation. However, I think that on a scale of 1 to 10, the KM culture is only about 6.5, which implies that it is not very strong in the organisation". In addition, KM was perceived to be actively practised in the organisation by 11 of the 22 participants. Also, 9 of the 22 interviewees agreed that KM is an integral part of the work processes. Taken together, these results signify that the participants were divided when evaluating the perceived level of KM activity and involvement, as well as the level of integration of KM into the work processes.



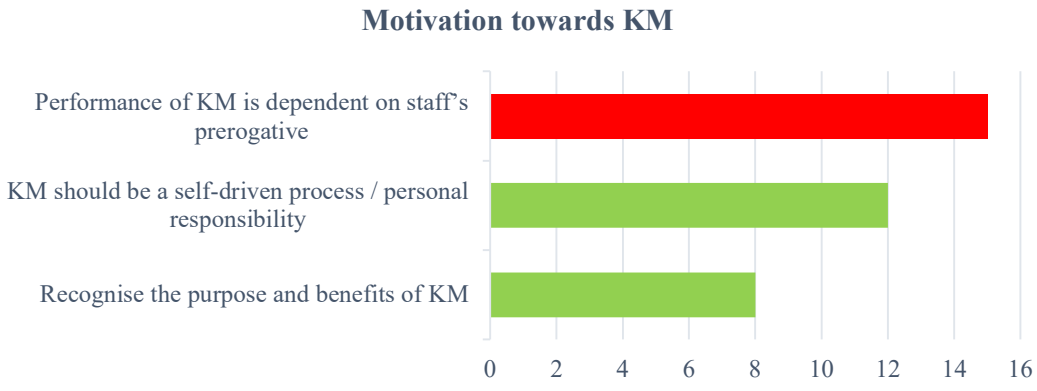
Note: Green denotes a positive trait; red denotes a negative trait

Figure 4.6: Participants' Perception of the KM Culture in the SPF

There was a perceived lack of emphasis of KM in the organisation as 6 of the 22 participants informed that they have been made aware of or trained in KM-related practices. Also, 7 of the 22 participants felt that KM was actively emphasised by the management. A participant, Dave, commented that "KM is not actively emphasised and supported by the supervisors and senior management, at least I do not think that it is obvious to me". Taken together, the unfamiliarity of KM coupled with the discerned lack of emphasis of KM and its related training could have contributed to the current tepid state of the KM culture in the organisation.

4.3.2 Motivation Towards the Practice of Knowledge Management

The study noted that the practice of KM in the SPF is strongly motivated by the disposition of the individual, as flagged by 15 out of the 22 participants as shown in Figure 4.7. The dynamism to perform KM activities was identified by the interviewees to be dependent on both the knowledge holders and knowledge recipients, but the KM culture of the organisation was not highlighted as an influencing factor. The evidence corroborates the earlier finding that the KM culture of the organisation is still in the developmental stage as it has yet to exert influence on the KM practices in the organisation.

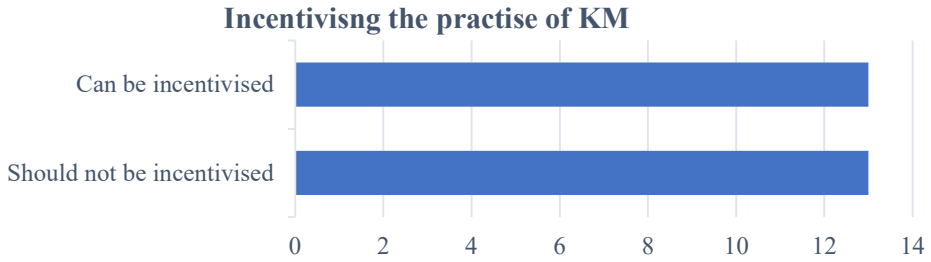


Note: Green denotes a positive trait; red denotes a negative trait

Figure 4.7: Participants' Motivation Attitude towards KM

On a positive note, 12 of the 22 participants emphasised that the practice of KM should be a personal responsibility, while 8 of the 22 interviewees recognised the importance of KM and have expressed their willingness to practice it. One participant, Francis, felt that "individuals should have responsibility for KM to make KM works". Another participant, Alex, emphasised that KM "is something that we need to be disciplined to do as it is for our benefit".

Other than being intrinsically motivated, the willingness to perform an action can also be influenced by external means (see Figure 4.8). For those who agreed that the practice of KM can be incentivised (13 of 22), they questioned its effectiveness in the long run, as it may end up being driven by the perceived rewards which are not sustainable. For instance, another participant, Daniel, opined that "the rewards may be effective in the short run, but such rewards that are specially created to sustain that desired culture may not work in the long run". On the other hand, the opposition towards the use of incentives (13 of 22) doubted the need for it in the first place. It appears that there is no definite answer to this question, as the effectiveness of using rewards to incentivise the performance of KM is subjective as people react differently towards motivational factors. Overall, the results suggest that using rewards as the motivating factor may not be effective in the longer term.



Note: Blue denotes a neutral trait

Figure 4.8: Participants' Perception of the Effectiveness of Incentives to Practise KM

Apart from the typical rewards and recognition as drivers to encourage the performance of KM, the participants offered alternative suggestions for

consideration. For instance, 12 of the 22 participants emphasised the importance of education (in terms of training) in promoting the practice of KM. Frequent reminders were also suggested to emphasise to the staff members the importance of KM.

Five out of the 22 participants have suggested evaluating the KM performance of the staff members as part of the annual staff appraisal. The participants have presumed that formalising the performance of KM would create a sense of responsibility to encourage the practice of KM. On the other hand, only 1 (of 22) participant suggested the use of negative reinforcements (such as punishment) for failing to perform KM. A participant, David, suggested to "make those who are not practising KM feel uncomfortable when not doing so. Penalise those who did not practice KM is another solution". The results show that the negative reinforcements are less likely to produce results that require additional effort to be invested by the staff members.

In summary, this section has investigated the perception of the importance of and the need for KM in the SPF and has flagged that the KM culture in the SPF is still in the developmental stage. Although evidence of indicators reflecting a KM culture can be found in the organisation, it was perceived that the practice of KM is not widespread, and KM has not been effectively integrated as a part of the work processes.

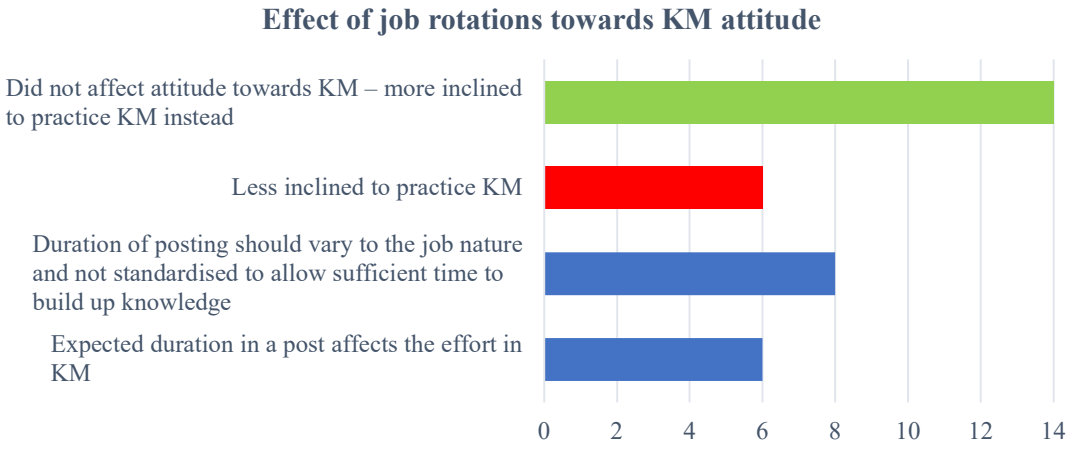
In terms of the motivation to perform KM activities, it was identified from the results that the attitude of the staff members, instead of the KM culture, is driving the practice of KM in the organisation. There is positivity among the participants towards the performance of KM, as it was felt that practising KM is a personal responsibility. The effectiveness of using extrinsic factors (such as recognition and rewards) to encourage the performance of KM appears to be mixed, with calls by the participants to include KM as part of the performance appraisal to formalise the practice.

4.4 Job Rotations and Knowledge Management

In the preceding section, the participants' perception of the KM culture in the SPF and the relationship with the KM performance in the organisation was examined. This section investigated the impact of regular staff movements towards the practice of KM in the organisation, which addressed the research objective to understand the relationship between the human resource management practices such as staff movements and knowledge transfer and retention in the SPF, set out in Section 1.3.

4.4.1 Influencing Factors of Job Rotations Towards Knowledge Management

Figure 4.9 shows that 14 of the 22 participants mentioned that the regular job rotations did not negatively affect their construal towards the practice of KM, as compared to the rest (6 of 22) who informed that they were less inclined to practice KM. For instance, one of the participants, Daniel, said that "I do not think that the frequency of job rotation is likely to negatively influence an officer's attitude towards KM", while Dave contrasted that "officers are less inclined to practice KM as they know that they will not stay long in a post, and the accumulated knowledge may not be used in the subsequent postings". Furthermore, many of the participants felt that the need to participate in regular job rotations has motivated them to practice KM.



Note: Green denotes a positive trait; red denotes a negative trait; blue denotes a neutral trait

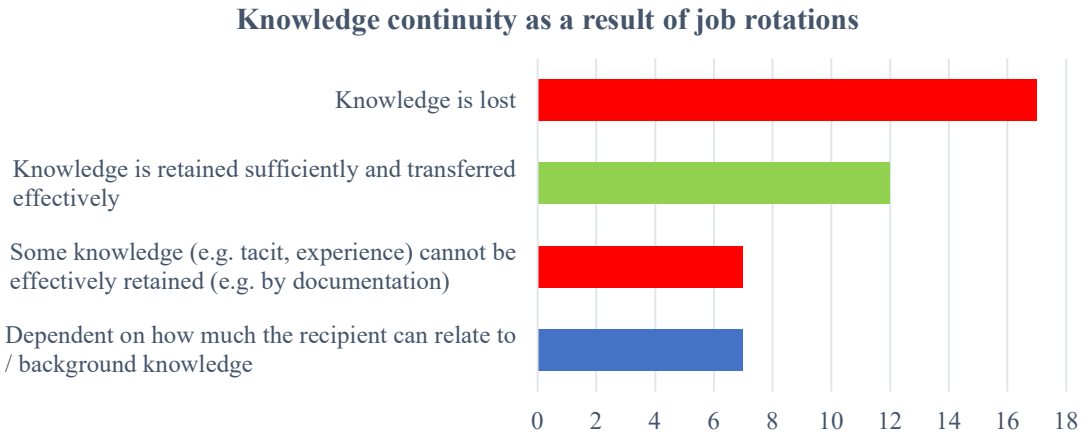
Figure 4.9: Participants' Perception of Job Rotations and the Effect on the Practice of KM in the SPF

Instead of fulfilling a standardised duration for all the positions, 8 of the 22 participants have advocated varying the frequency and duration of each job rotation: the rate of recurrence should take into account the nature of the job function to address the specific needs of KM, rather than to standardise a typical duration of posting for all positions. This is to consider the varying pace of different job functions and the expected timeframe to cultivate sufficient knowledge to be passed down. Nevertheless, there was consensus among the participants (6 of 22) that the expected duration in a job will affect their attitude towards the practice of KM.

Synergising the above findings, it could be concluded that the attitude towards the practice of KM is affected by the frequency and duration of the job rotations, instead of the practice of job rotations. However, it was inclusive to establish whether a shorter or longer duration in a job position would encourage the practice of KM, as the results appeared to be mixed.

4.4.2 Job Rotations and Knowledge Continuity

Turning now to the perception of knowledge continuity during job rotations, the study noted that 17 of the 22 participants felt that knowledge is lost as a result of the regular staff movements, which led to the conclusion of a lack of knowledge continuity as a result of such transitions (see Figure 4.10).



Note: Green denotes a positive trait; red denotes a negative trait; blue denotes a neutral trait

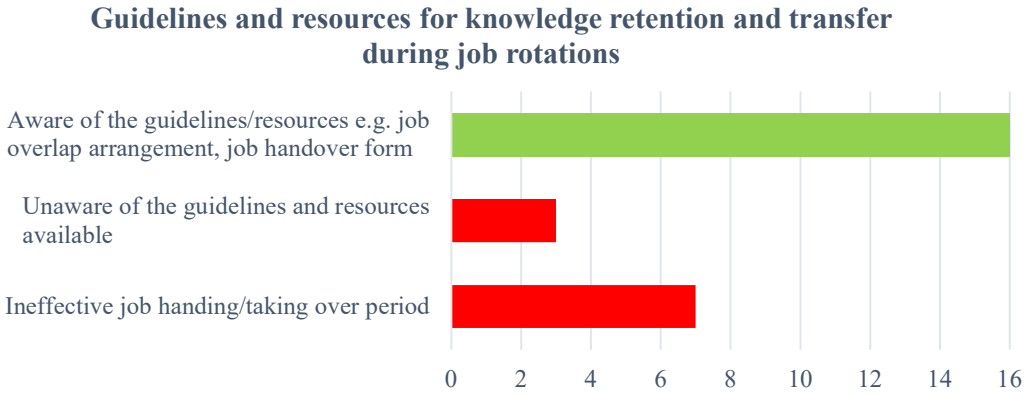
Figure 4.10: Participants' Perception of Knowledge Continuity as a Result of Job Rotations

To establish the reasons for the knowledge loss, the study examined the key elements in a knowledge transfer process, namely, the knowledge recipient, the knowledge holder, and the KM process and resources. Firstly, 7 of the 22 participants highlighted that the effectiveness of the knowledge transfer depends on the recipients, as it would be difficult to pass down the knowledge if the recipients are unable to relate to the knowledge due to their unfamiliarity with the subject. A participant, Rose, related her experience: "When I left my last posting, I handed over my entire hard disk of information to my successor with a long write-up. However, my successor still contacts me very often and she feels that she did not receive all the information that is required. This illustrates that for a recipient, having all the information does not equate to knowing where to look for the information. Also, the person may not know how to effectively use the available information."

Secondly, 7 of the 22 participants also highlighted that tacit knowledge (such as experience) is susceptible to be lost as this form of knowledge is usually difficult to be transcribed into documents for retention and transfer, which further hinders knowledge continuity. Unanticipated staff departure was also identified by the participants to be a major concern of knowledge drain, as tacit knowledge may not have been effectively documented or transferred to other staff members for

knowledge continuity, especially if the changes are happening under brief notices. Another participant, Marcus, highlighted a challenge he faced: "We have several very experienced trainers, but their experience is not translated into documentation in any form as it is still very human-based. When these experienced officers retire, the knowledge and experience they have will also 'retire' with them".

Thirdly, in terms of the accessibility of the resources for knowledge retention and transfer, it was found that there was a high level of awareness (16 of 22) of the available guidelines and resources available for the practice of knowledge retention and transfer, which dismissed it as a cause of failure to ensure knowledge continuity (see Figure 4.11). Nonetheless, it was opined by 7 of the 22 participants that it was not a lack of resources, but the implementation of KM practices that was ineffective; the induction period during the job transition was inadequate, as the handing and taking over of the responsibilities are happening concurrently and such an overlapping arrangement may not be conducive for learning.



Note: Green denotes a positive trait; red denotes a negative trait

Figure 4.11: Participants' Awareness of the Guidelines and Resources Available for Knowledge Retention and Transfer during Job Rotations

To summarise, this section has examined the relationship between human resource management practices (such as staff movements) with the performance of knowledge transfer and retention in the SPF. It was found out that the need for regular job rotations has encouraged the practice of KM in the organisation, as the

staff members recognised the need to hand over their knowledge to the officer taking over their duty. The frequency and duration of each job rotation should also be varied to consider the differing KM needs of the job functions.

Despite the inclination towards the practice of KM, the study further noted that there was perceived knowledge lost from the practice of job rotations. It was further established that tacit knowledge constitutes the greatest source of knowledge loss as a result of job rotations or sudden staff departures. Also, despite the participants reporting that they have a general awareness of the guidelines and resources available for knowledge handing/taking over, they felt that the measures in place, such as the induction period, should be extended to be effective.

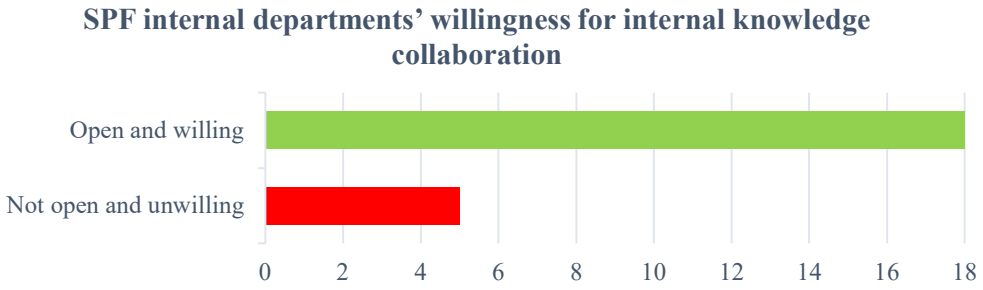
4.5 Collaboration and Knowledge Sharing

The relationship between job rotations as part of the human resource management practices and the KM culture and its performance was examined in Section 4.4. The third and final element investigated in the conceptual framework (see Figure 4.1) was the perceived level of knowledge collaboration and sharing between the SPF departments and with the external stakeholders. The findings assessed the level of receptiveness towards knowledge collaboration between the internal departments and the external stakeholders, as stipulated in the research objectives (see Section 1.3).

4.5.1 Collaboration with Internal Stakeholders

Figure 4.12 tabled the participants' perception of the willingness of the SPF internal departments to share knowledge. The findings of this investigation showed that 18 of the 22 participants agreed that the SPF departments were open and willing to share knowledge. Also, the participants generally did not express any difficulty faced when soliciting information, as they could get the details they required from the knowledge holders. One participant, Warren, shared his experience: "Internally in SPF, I do not see any issue with knowledge sharing so long as the rationale of the request is spelt out clearly", while another participant,

John, said that "the internal departments will usually share upon understanding the rationale and context for the request". However, the results of the current study do not support the findings of the literature review (see Section 2.6.2), where it was established that the internal departments in other police forces were unwilling to engage in knowledge sharing.



Note: Green denotes a positive trait; red denotes a negative trait

Figure 4.12: Participants' Perception of SPF Departments' Willingness for Internal Knowledge Collaboration

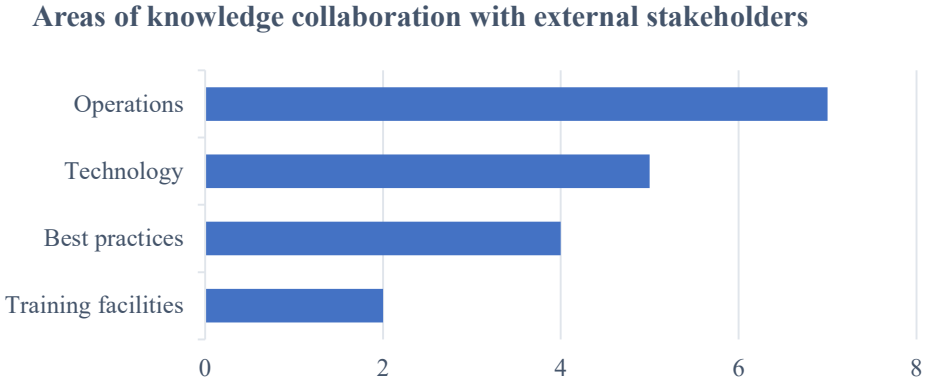
4.5.2 Collaboration with External Stakeholders

In the preceding section, it was underlined that the internal departments of the SPF were open and willing to share knowledge. In this study, the receptivity of knowledge collaboration with external stakeholders was investigated and it was found out that the 19 of the 22 interviewees agreed that there was perceived value for SPF to engage in knowledge collaboration with the external stakeholders (see Figure 4.13). These results matched those observed in previous studies (see Section 2.6.4), where there is value in harnessing knowledge through external alliance and cooperation.

Note: Green denotes a positive trait; red denotes a negative trait

Figure 4.13: Participants' Perception of Knowledge Collaboration with External Stakeholders

On the possible areas of external knowledge collaboration (see Figure 4.14), the participants have suggested exploring new operational frontiers, adoption of new technologies, learning of best practices from industry experts, and sharing of training facilities with other government agencies. The participants have also expressed their receptiveness towards the sharing of classified information with the external parties if the organisation could benefit from such partnerships, as opposed to safeguarding the confidentiality of information that does not offer any significant advantage to the organisation if the information is not constructively used.

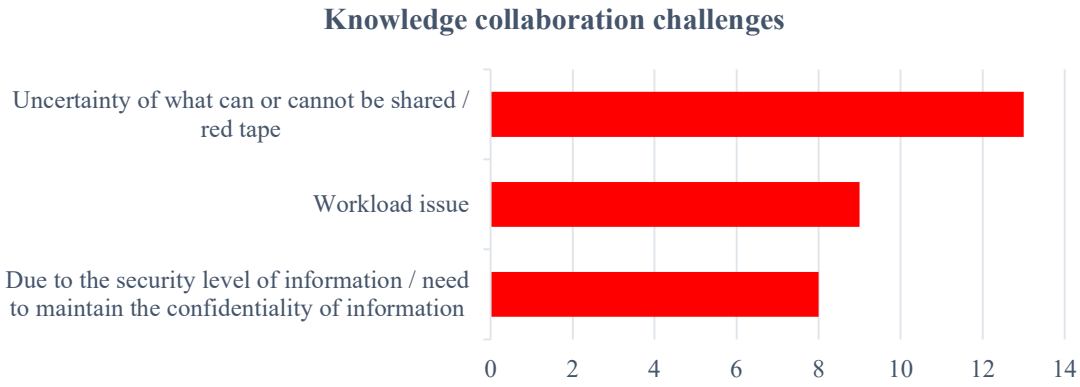


Note: Blue denotes a neutral trait

Figure 4.14: Areas of Knowledge Collaboration with External Stakeholders

4.5.3 Knowledge Collaboration Challenges

In contrast to the earlier findings that knowledge sharing and collaboration were well-received by the participants, there are existing challenges that have hindered the potential progress. From the results in Figure 4.15, it is evident that the security classification of the materials is restricting the extent of sharing by the knowledge holders, which was flagged by 8 of the 22 participants. As a result, the participants expressed difficulty establishing a middle ground between the materials that could be shared because of the classification of the information and the stringent guidelines to preserve the confidentiality of the materials. A participant, Dave, opined that "the need to maintain the confidentiality of information may prevent sharing as well. This is because as one may be unsure of how much the other requesting party is privy to the requested information to be shared. As such, only the minimum is shared so that nothing will go wrong".



Note: Green denotes a positive trait; red denotes a negative trait

Figure 4.15: Knowledge Collaboration Challenges

Another key challenge expressed by 13 participants was uncertainty over the materials that can be shared and the access level of the recipients. This has resulted in staff members taking a precautious position by seeking multiple levels of clearance before sharing the knowledge materials, generating additional red tape in the process. One of the participants, Olivia, commented: "Red tape is a key challenge. We are always unsure if the information can be shared or not. Also, there are many layers of clearance required". 9 of the 22 participants also

perceived workload issue to be a challenge to engaging in knowledge collaboration with stakeholders. This has resulted in the reluctance to share knowledge as it takes additional effort to overcome the other challenges highlighted earlier, which further increased the workload of the staff members. Another participant, Alan, felt that "there are too many red flags that will discourage people from sharing. For instance, there may be a need to seek clearance from multiple layers just to share something, which is so troublesome that one may end up not sharing".

To conclude, these results provide important insights into the participants' perception of knowledge collaboration among the internal departments and external stakeholders, as set out in the research objective, to assess the level of receptiveness towards knowledge collaboration between the internal departments and the external stakeholders.

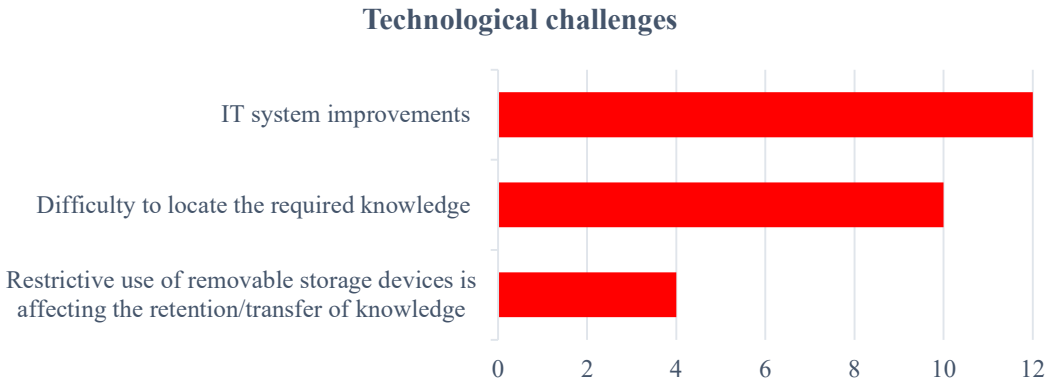
The findings showed that the SPF internal departments were open and willing to share knowledge. Also, the participants have acknowledged the benefits of knowledge collaboration between SPF and the external stakeholders, as well as expressed their openness to share confidential information for the organisation to benefit from such cooperation.

Notwithstanding the positivity expressed in knowledge sharing and collaboration, there are challenges in the current processes that need to be addressed. Primarily, there needs to be greater clarity on the security classification of knowledge documents and the party allowed to receive such information. Until that is clearly defined, there would be uncertainty over the materials that could be shared, and additional red tape is added in the process to seek clearance from multiple layers. This would, in turn, generate additional workload for the staff members, which makes knowledge sharing and collaboration less favourable and more unlikely to materialise.

4.6 Technology and Knowledge Management

Other than the influencing factors examined in Sections 4.2 to 4.5, the conceptual framework in Figure 4.1 has posited the investigation of technology and the perceived performance of KM in the organisation. This section would present the findings between technology and the KM performance in the SPF and identify the current challenges to be addressed.

The results, as illustrated in Figure 4.16, showed that IT system enhancement was highlighted by 12 of the 22 participants as the key improvement area to encourage the practice of KM in the SPF. In particular, the search function needs to be enhanced to improve the quality of the search returns. This feature is critical for the effective performance of KM in the SPF, as it was flagged in Section 4.2.3 that knowledge retention and retrieval are two of the key KM activities practised and the ease and ability to search for the required knowledge is fundamental. To complicate matters further, a common view amongst the participants (10 of 22) was that the knowledge sources are scattered in various domains or databases and they felt constrained by the limited usability of the search returns which were unable to search multiple sources concurrently.



Note: Green denotes a positive trait; red denotes a negative trait

Figure 4.16: Technological Challenges

The study showed that 4 of the 22 participants flagged the limited use of removable devices to archive and transfer documents, which has caused

inconvenience and difficulty when transferring documented knowledge. Even though there are workarounds, such as online storage drives that allows the sharing of digital data, the process is demanding due to a large number of files and the file sizes to be shared. This has led to concerns expressed by the participants that the lack of suitable data transfer alternatives has affected their ability to transfer documented knowledge.

The findings of this study have established a link between technology and the performance of KM in the organisation. To further facilitate the performance of KM, existing challenges with the current technology adopted in the organisation have been identified and need to be addressed, such as improving the capability of the search function to generate meaningful results and the identification of alternative data storage and transfer solutions that would mimic the functions of USB storage devices more closely.

4.7 Summary

This chapter provided insights into the demographics of the sample, the data collection and analysis process and the key findings derived from this study. The background information presented the context of the organisation being studied, while the findings informed the current state of the KM culture and practices that would address the research aim and question.

This study offers empirical evidence to determine the perception of KM and its practices in the SPF. The findings established that knowledge is acknowledged to be an important resource in the organisation. However, the KM culture of the organisation was perceived to be in the developmental stage. This is attributed by the unfamiliarity of how knowledge is to be managed and a lack of awareness of the established KM processes. As a result, KM is not effectively integrated into the work processes, which results in inconsistency in the practice of KM in the organisation. Nevertheless, there is positivity among the participants of the need to perform KM, which will be the driving force to be harnessed for positive changes to the KM culture and practices.

The relationship between human resource management practice of regular job rotations and the performance of KM was examined. The findings suggest that the involvement in job rotations will affect the attitude towards performing KM and achieving knowledge continuity. However, it should be recognised that the practice depends on the expected duration, which affects the frequency. Further research needs to be conducted to establish the optimal duration for each rotation, taking also into consideration the nature of the post such that it meets the KM needs of the organisation. Another finding from this study showed that knowledge was perceived to be lost in the job transitions, with the loss of tacit knowledge being most severe when there are sudden staff departures. This should be a strong signal for the management to realise the importance of KM and to devise measures to reduce the knowledge drain.

In terms of knowledge sharing and collaboration, the internal departments were willing to exchange knowledge with one another. Although the participants recognised the advantages of knowledge collaboration with the external stakeholders, some challenges need to be addressed, such as the types of materials that can be shared and the parties that are allowed to receive such information.

Lastly, technology was established to be closely linked to the performance of KM. For the SPF, the challenge is not the lack of technological solutions, but the need to continuously improve the capability of the current tools so that they can keep up with the changing policies and needs of the organisation.

With the presentation of the findings for this study, the next chapter will elaborate and discuss the implications for KM in the SPF.

CHAPTER 5 - DISCUSSION

5.1 Introduction

The preceding chapter was the first of two parts to the data collection, analysis and discussion, described in Section 1.5. It has presented the findings of this study and highlighted the key learning points and challenges from the exploration of the relationship between the KM culture and KM performance as experienced by the participants in the organisation.

In this chapter, the findings established in Section 4.2 would be deliberated. The inferences would also be conciliated and cross-referenced with the literature review (Chapter 2) to inform the deductions for this research. Thereafter, the findings would be analysed and conclusions were drawn to sequentially address the research aim and question set out in Section 1.3. The deductions derived from this study would be compared with the past research, and conclusions that contribute to the knowledge base and practice would be highlighted.

5.2 Knowledge Management Context in the SPF

This section aims to decipher the KM context in the SPF by examining the KM culture through the participants' description of the experienced reality, with the findings established in Section 4.2. From the critical realist perspective adopted in this study, the KM context triggers the causal mechanisms (*real* level), which lead to the occurrence of the events of the KM practices (*actual* level) and are described by the participants as they experience the phenomenon (*empirical* level). Since people interpret meanings differently, the context helps to bridge the gap between the reader and the researcher by providing specific information on the subject. Furthermore, the contextual information aligns the thoughts of the readers with how the meanings are interpreted by the researcher.

5.2.1 Purposes of Knowledge

Although the participants were selected from different departments and performing dissimilar scopes, the majority of them reported that policing is a function that is heavily reliant on knowledge, a finding consistent with the past studies (e.g. Tan & Al-Hawamdeh, 2001:313). The finding in this research can be explained by the fact that 90% of the participants are uniformed police officers and the performance of policing duties are their primary functions. Furthermore, the nature of policing requires the understanding of police powers and legislation for the effective discharge of responsibilities by the officers.

The performance of policing duties is also closely related with the need to conform to legislation and documented procedures, such that the actions of the police officers are permitted under the law and following the endorsed organisation processes. This is because the scenarios that the officers are presented within their daily work can be wide-ranging, from handling of social issues to general crimes and even security-related matters. The legislation states the extent and legality of the actions that the police are allowed to pursue, while the availability of the documented procedures provides a source of reference for the officers to follow when encountering similar situations. With the practice of regular staff movements in the SPF (see Section 2.6.3), the documented procedures provide the reference for the officers taking up new roles and also ensure uniformity in their actions.

Besides carrying out policing duties and the need for compliance with established procedures, the importance of knowledge was also ascribed to ensure consistency in practices. Since policing is a public service, it is desirable for uniformity in service delivery regardless of where and when assistance is required from the police. As the SPF is made up of close to 9,000 police officers (Tan, 2018), the standardised procedures will portray the consistency in actions as an organisation. Any difference in treatment received may be perceived by the public as being unprofessional, especially if they feel disadvantaged by the atypical decision of the officers. Furthermore, the inconsistency in practices may be alleged as favouritism or discrimination towards a certain race or religion, which is a sensitive issue in a multi-racial and multi-religion country like Singapore (Juanda, 2016), especially for a public service that is expected to be neutral towards skin

colour and beliefs. The public outcry of police racism over a black male subject who was killed by a white police officer while in police custody in the United States (Waxman, 2020) amplifies the need for police officers to be unbiased and to exercise impartiality in their attitude and actions towards the people they are serving.

While the above points were closely associated with the performance of frontline policing duties, the participants also referenced the purpose of knowledge related to staff work, which is a criterion set out in the selection of the sample frame (see Section 3.3.2). Knowledge was highlighted in this study to be an important resource to provide the background for past policies when making future decisions. Also, knowledge is necessary to ensure continuity during the regular job rotations. The results accentuated two of the key elements to be considered when deliberating the effect of KM due to staff rotations subsequently in Section 5.4.

5.2.2 Familiarity with Knowledge Management Processes

Although the participants recognised the importance of knowledge highlighted in the preceding section, only a modest number of them responded that they were familiar with KM and the related practices in the organisation; many were uncertain whether their actions were considered being KM related due to their unfamiliarity with the subject. It was only upon the researcher's prompt that those who had previously expressed their unfamiliarity could give examples of the KM activities they have performed; the majority of the participants cannot associate the tasks they were performing with KM as they were not conversant with the subject of KM.

The above proposition could be corroborated from the results as there was general unawareness of formal guidelines on the KM practices. In the SPF, the ground practices are heavily guided with reference to the documented procedures. A lack of awareness of the formal KM instructions to follow has led to the staff members assuming the liberty to decide how KM is to be performed. Although the actions were carried out by the staff with good intentions, this might lead to inconsistency

in the practice of KM across the organisation. Without a clear appreciation of the direction of the KM strategy to drive the KM initiatives, the KM practices were perceived not to be concerted across the organisation, and the desired outcome may not be achievable as highlighted by Seba and Rowley (2010:622) and Abrahamson and Goodman-Delahunty (2014:1) (see Section 2.6.1). A research finding by Cong and Pandya (2003:25) also points towards the seemingly lack of awareness of KM in the public sector, which can severely hinder the effective implementation of KM in the organisation.

Another possible explanation for the participants' unfamiliarity with KM practices can be due to the fact that unlike other management subjects (such as project management) that have gained academic attention over the years, KM has remained primarily an organisational phenomenon than being introduced as a theoretical subject in schools. As a result, many are unfamiliar with the underlying concepts of KM and the corresponding practices, although the staff may have practised KM without realising it. The limited availability of KM training within the organisation and the lack of related courses provided by external trainers could have further reduced the subject's application in the workplace.

From a critical realist angle, Bhaskar (2008:13) advocates that the established knowledge can be used to explore the intransitive structure of the experienced culture in its context. The participants' unfamiliarity with KM and its related practices suggested that the subject of KM was under-emphasised, which could undermine the purpose of KM and its constructs in the organisation. The finding aligns with studies conducted on other police forces (e.g. Mauritian Police Force and Dubai Police Force), where the officers responded that they were unaware of the KM processes or there was a perceived lack of presence of KM in their respective organisation (Biygautane & Al-Yahia, 2010:4; Jhingut & Nagowah, 2013:389). Nevertheless, the SPF recognises KM as a discipline that requires rigorous formal training and lifelong learning (SPF, 2015:21). There are also commitments to train its officers using the KM Roadmap and identifying the challenges of practising KM (ibid:21). A research finding by Griffiths *et al*. (2016:279) also points towards the need for greater emphasis on training to pass knowledge. The momentum is expected to continue to align KM with the business

processes and equip the officers with the skill set to perform the KM activities competently. There is, therefore, a need for more education and engagement efforts to generate further awareness of KM and promulgate the best KM practices to the officers.

5.2.3 Knowledge Management Activities

Among the KM activities highlighted by the participants, there was a strong emphasis on knowledge retention as compared to the others, which could be attributed to the need to retain and transfer knowledge due to regular staff movements and the constant reference to past decisions for policymaking, particularly in staff work. Also, knowledge retrieval, knowledge sharing and knowledge review were highlighted as information which is constantly disseminated down the hierarchy to ensure that all the officers are kept up-to-date with the most current practices, which are aligned with the purposes of knowledge such as compliance and consistency as identified in the preceding paragraphs.

The KM activities cited by the participants were also consistent with the literature on how knowledge is managed in the police force (e.g. Tan & Al-Hawamdeh, 2001:313; Chavez *et al*.; 2005:29). Comparing with the previous study by Girard and Girard (2015:14), knowledge 'creation' as cited in their definition of KM process was not mentioned by any of the participants. The discrepancy could be due to the nature of policing, where the application of knowledge and information takes precedence over knowledge creation. The reason is that the latter is not considered to be a key driver of the organisation, as compared to those that depend on knowledge creation to maintain competitiveness and sustainability of the business value (Hafeez & Abdelmeguid, 2003:155) (see Section 2.6.1). This confined perspective reveals missed opportunities, considering the massive amount of data and information that are collected by the organisation daily. Other than generating the usual crime statistics and identifying the crime hotspots for operational uses and reporting, the data and information can be further analysed to generate additional insights, such as predictive policing to identify and anticipate the emerging of crimes before they happen, turning policing operations from being reactive (responding to incidents/cases after they occurred) to

proactive (prevention and education). The details can also be shared beyond SPF to other government agencies and private entities to anticipate the corresponding societal demands for capacity building and improve resource allocations. To achieve the above outcomes would require additional investments by the organisation in data analytics, particularly human analysis to examine the context that cannot be achieved by machines (see Section 2.6.1). There is also a need to re-examine the current position and approach towards knowledge sharing beyond the organisation, which would be examined in more details subsequently in Section 5.5.3.

Collectively, this introductory section offered insights into the context of KM in the SPF as set out in the research objectives. Knowledge in the SPF was established to be the basis for the discharge of policing duties that conform to the legislations and formal procedures, as well as ensuring the consistency in service standard rendered to the public. Despite knowledge was regarded to be an important resource in the organisation, the awareness of KM and its practices were not widespread in the SPF as the majority of the participants do not recognise their actions to be KM related. This uncovered a potential area of improvement in the management of knowledge as a resource as it suggested that KM and its practices were currently under-emphasised in the organisation. The deduction was supported by the finding that there was a lack of awareness of the staff on the formal documentation that defines or guides the performance of KM in the SPF. As a result, the officers decided for themselves how KM was to be practised, and it has led to varying practises and standards that pose challenges to the management of knowledge. The under-emphasis of KM may also affect the KM constructs and practices in the organisation, which would be examined further in the next section.

5.3 Knowledge Management Culture

In the preceding section, the KM context of the SPF has been examined to provide the background necessary for the understanding of this study. This section would construe the findings presented in Section 4.3 to further investigate the KM

culture in the SPF by examining the staff members' perspectives and motivations towards KM.

As established in previous research (see Section 2.6.2), the shared values and behavioural norms define expectations that direct behaviours in the absence of a law or clear instructions (Ahmady *et al*., 2016:388). Also, scholars (e.g. Standing & Benson (2000); Syed-Ikhsan & Rowland (2004); Seba & Rowley (2010); Ahmady *et al*. (2016)) have established the functional relationship between organisational culture and knowledge sharing, with the KM culture of the organisation being the key to the success of KM initiatives.

This section builds upon the understanding from the previous segment by investigating the perception and behavioural aspect of the staff members towards the performance of KM. Through the critical realist lens, the KM culture of the SPF and its mechanisms (*real* level) can be observed from the occurrence of the practice of KM (events) (*actual* level) and understood through the perspective of the participants (*empirical* level), as the experienced phenomenon is formed and shaped by cultural constructs which lead to the construction of the realities (Patton, 2002:96; Wahyuni, 2012:70). Another area of focus is to understand the level of KM activity and the integration of KM within work practices. As the management plays a vital role in driving the desired culture of the organisation (Stankosky, 2005:5; Schutte & Barkhuizen, 2015:139), it is imperative to find out the perceived support of the management towards KM and how it has shaped the KM culture in the organisation. This section concludes by exploring the avenues to improve the KM culture in the organisation.

5.3.1 Perception of Knowledge Management Culture

The results showed that at the organisational level, there was consensus and recognition of the presence of KM culture in the SPF. However, further examination of the results shed insight into their perception of the maturity of the KM culture in the organisation: many of those who acknowledged the presence of KM ideology and efforts also emphasised that the KM culture could be further improved.

Previous research by Alavi *et al.* (2005:193) concluded that KM practices in the organisation are heavily influenced by its culture; the KM culture can be construed from the level of KM activity in the organisation. In this study, it was found that KM was not widely perceived to be actively practised in the organisation and was not considered to be an integral part of the work processes. Similarly, Griffiths *et al.* (2016:277) pointed out that none of the UK police forces that were studied has an overarching KM strategy or policy. There was also consistency with past research, revealing that the informal practice of KM has led to a lack of coherent and formal strategy in the practice of KM in the organisation (Amber *et al.*, 2018:19; Stoddart, 2019:69). Taken together, these results signify that the participants were divided when evaluating the perceived level of KM activity and involvement as well as the level of integration of KM into the work processes. An explanation for the lack of awareness of KM activities and practices is that the participants at the individual level did not realise that the activities they have been performing were KM-related. Additionally, the deduction could be interpreted as a perceived lack of emphasis of KM in the organisation as the participants were unaware of or untrained in KM-related practices (see Section 5.3.2). The similarity in the findings from the past and present studies reaffirmed the perspective that the attention paid to the KM concept in the police forces was inadequate, which would subsequently lead to the officers' difficulty to adopt the KM tools and techniques. A possible solution suggested by Cong and Pandya (2003:29) is for the public sector organisations to adopt and adapt KM practices that are prevalent in the private sector into the public sector settings so as to take advantage of the opportunities of globalisation.

The findings also revealed that KM was not actively emphasised by the management. It may be suggested that the unfamiliarity with the subject of KM (see Section 4.2.2) coupled with the discerned lack of emphasis of KM and its related training may have contributed to the current tepid state of the KM culture in the organisation. Examining the issue from the operational angle, there is less emphasis to ensure consistency of internal practices (such as KM) as compared to other areas that have legislative implications or be subjected to public scrutiny (see Section 2.6.2). Also, it is impractical for the organisation to dictate a set of

standard procedures for KM that applies to all, considering the diverse scope of policing and the different focus of knowledge placed by officers according to the roles and duties they are performing, which would affect how KM is perceived and practised by the officers (see Section 2.5). Overall, it can be established that the current state of the ethos in the organisation is still in the developmental stage and more could be done in terms of education and engagement related to KM in the organisation. A practical approach to shape the practice of KM in SPF is through the informal approach of cultivating a favourable KM culture in the organisation. The promulgation of best practices instead of written instructions would also enable the officers to assess and select the most appropriate set of procedures to meet their KM needs than to forcefully follow a set of instructions that may not work.

Examining deeper into the interview transcripts revealed that there is differentiation in the level of KM activity performed at the individual and departmental level, where KM is not as actively practised at the individual level compared to the departmental level. A participant, Tom, commented that "KM is not exactly an integral part of the organisation's work processes. I think the drive behind practising knowledge management is more of an individual need than required as part of the organisational processes". The statement could also be correlated to the earlier findings in Section 4.2.2, where there is a perceived lack of a formal framework to guide the officers on practising KM, although there is the emphasis placed by the supervisors at the departmental level to manage the knowledge under the department's purview. On this matter, the Summary Report (EnterpriseSG, 2019) released by SPF in conjunction with the winning of the Singapore Quality Award with Special Commendation was reviewed. In this report, the SPF KM Framework (see Figure 5.1) was elaborated and aimed to drive the practice of knowledge sharing within the internal departments and external stakeholders through the elements of culture, infrastructure and technology.

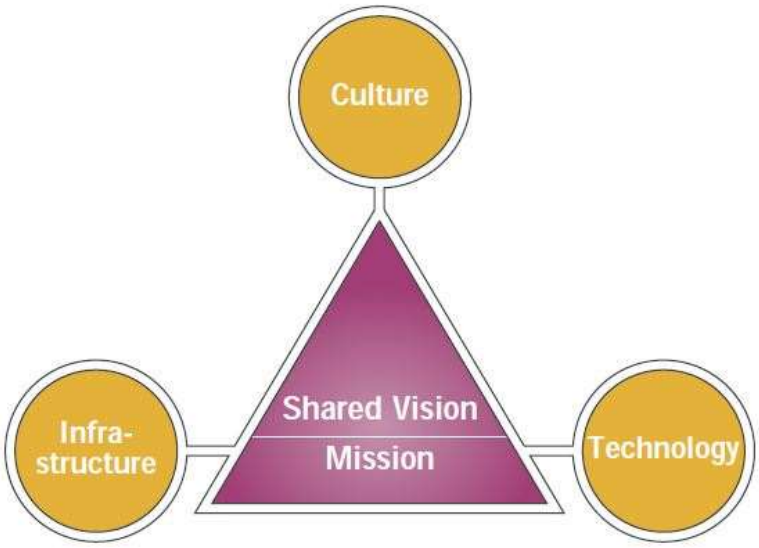


Figure 5.1: SPF KM Framework (SPF, 2007:24)

Contrary to the findings in this study, this publicly accessible report has refuted the claims of the perceived lack of the KM framework by the participants. The proposition revealed the knowledge gap between the documented KM strategies in the organisation and what the staff is aware of. This is because of the availability of the KM framework in a report published by SPF (SPF, 2007) in the public domain, yet unknown to the majority of the staff members, highlights the inadequate communication of the KM processes internally and the under-emphasis of KM within the organisation, as the internal staff members were unaware of the corresponding KM initiatives or processes in place. The perceived lack of awareness of the KM framework and the practices could be due to the short duration of KM implementation since the KM framework was introduced only in recent years (SPF, 2014:27). An implication of this finding is the need to invest additional efforts into strengthening the education and engagement of the officers to familiarise them with the current KM framework and guidelines, which would, in turn, encourage the standardisation of KM practices in the organisation.

5.3.2 Motivation Towards the Practice of Knowledge Management

The study noted that the disposition of the individual strongly motivated the practice of KM in the SPF. The interviewees identified the dynamism to perform

KM activities to depend on both the knowledge holders and knowledge recipients, while KM culture of the organisation was not highlighted to be an influencing factor. The focus is on the performance of the individual, as the determinant towards the practice of KM corroborates the earlier finding that the KM culture of the organisation is still in the developmental stage and it has yet to exercise an influence on the KM practices in the organisation.

On a positive note, there was consensus among the participants that the practice of KM should be a personal responsibility, as they recognised the importance of KM and have expressed their willingness to practise it. The finding also contends with Seba *et al.*'s (2012:373) claim that KM is more of a management responsibility than that of the employees in a bureaucratic organisation. The difference in perspective can result from the informal approach of cultivating a favourable KM culture in the organisation by the staff instead of a deliberate attempt by the management (see Section 5.3.1). The self-awareness of personal responsibility towards KM can be interpreted as the officers' willingness to be proactive in the practice of KM. Fishbein and Ajzen (1975:16) have posited in the Theory of Reasoned Action that a person's actual behaviour depends on the attitude and the need to conform to social norms towards the desired behaviour (see Section 2.6.2). Since the attitude towards KM is generally positive in the organisation, the management should build on the current foundation and cultivate the KM culture by increasing the pressure to conform to the social norms of practising KM. The positivity expressed by the participants signals that they are likely to be receptive and respond favourably to KM initiatives to further cultivate the KM culture in the organisation with little resistance to change as highlighted in Section 2.6.2.

Another explanation for the participants' positivity towards knowledge sharing is they trust that their actions will result in reciprocal benefits, as there are similar expectations from the co-workers to share their information and knowledge when needed. The above finding resonates with the healthcare industry, which Han and Pashouwers (2018:47) found out that the perceived reciprocity relationship is relevant to the employees' willingness to share knowledge. The finding was also consistent with that of Lin (2007:144), who concluded that the employees'

attitudes and intentions toward knowledge sharing were formed by expectations regarding the correlative benefits that can be derived. However, the situation for SPF is not the same as the proposition by Syed-Ikhsan and Rowland (2004:96), whereby people will only share knowledge if there is a mutual benefit to be derived. Instead, a plausible explanation for the SPF context is the emphasis on building positive relationships with the co-workers in anticipation of potential collaborations, than to treat knowledge as a commodity for trade.

Besides being intrinsically motivated, external means can also affect the willingness to perform an action; the effectiveness of using extrinsic rewards and incentives to motivate the performance of KM was discussed in the literature review. Similar to the findings in Section 2.6.2 where the scholars were divided over the effectiveness of motivating the performance of KM through tangible rewards, the participants in this study appeared to be split between whether the practice of KM should be incentivised or not. For those who agreed that the practice of KM can be incentivised, they questioned its effectiveness in the long run, as it may end up being driven by the perceived rewards which are not sustainable. On the other hand, the opposition towards the use of incentives doubted the need for it in the first place. For instance, one of the participants, Daniel, said that "I do not agree that we need to offer explicit rewards to people for them to have specific behaviour or performance. When we need to use such a method to incentivise people, we have to ask ourselves why the intended actions are not happening in the first place". It appears that there is no definite answer to this question; the effectiveness of using rewards to incentivise the performance of KM is subjective as people react differently towards motivational factors. Overall, the results suggest that using rewards as the motivating factor to encourage the performance of KM may not be effective in the longer term. The conclusion is consistent with past research, which posits that organisational rewards can provide temporary incentives, but it will not be effective to shape the knowledge sharing behaviour (Lin, 2007:145).

Apart from the typical rewards and recognition as drivers to encourage the performance of KM, the participants have offered alternative suggestions that could be considered by the SPF management for implementation. Education (in

the form of frequent reminders such as email broadcast, in-house training) was suggested to emphasise to the staff the importance of KM placed by the management. As a comparison, other police forces like the Dubai Police Force have put in similar efforts into organising workshops and training to inform the staff of the importance and meaning of KM (Biygautane & Al-Yahia, 2010:4). This practice is akin to other internal messages that were regularly communicated by the SPF management to the staff members to remind them of the importance to comply with the conduct expected of a member of the police force, such as the importance of ethics and the exercise of financial prudence.

It was also suggested that the practice of KM should be evaluated as part of the annual staff appraisal. By formalising the performance of KM, the participants felt that it could create a sense of responsibility towards the practice of KM, as failure to perform KM could have an adverse effect on the job holder's assessment. Although the practice of KM has been assessed indirectly in performance evaluations, there are no real incentives for the staff to share their knowledge and expertise across the organisation (Stoddart, 2019:69). Liebowitz and Chen (2003:422) have cautioned against going down this route. They have doubts over the effectiveness of such a measure since knowledge sharing is not a significant consideration during staff appraisal in government organisations and there are limits to the resources to reward such behaviours (ibid:422).

The participants also acknowledged the challenges of the assessment, as the outcomes are neither easily quantifiable nor defined qualitatively. Should the effort be measured according to the time spent performing KM activities? What parameters should be used, and how should they be applied to evaluate the effectiveness of the KM practised? On a related note, the use of negative reinforcements for failing to perform KM was not widely supported. Although the topic of appraisal and rewards is beyond the scope of this study, it is necessary to point out that the participants' response to recognition and punishment will affect the effectiveness of the measures to be implemented. It appeared that some staff members would rather forego recognition than being penalised for tasks they did not perform. Their behaviour could have stemmed from their experience with the current appraisal system where they perceive penalties to have a more detrimental

impact on their performance evaluation than a lack of achievements. The alternative view suggests that staff are more resistant to the use of punishments for non-conformance, and this behavioural trait has to be taken into consideration when formulating measures to encourage the performance of KM.

Overall, this section has offered a vignette of how the participants construe the KM culture in the SPF as outlined in the research objectives set out in Section 1.3. The evidence presented in this section suggests that the state of the KM constructs in the organisation is assessed as being in the developmental stage. Even though there was recognition of the efforts to practice KM, there were also calls by participants to coordinate the practice of KM in the organisation, as a seeming lack of awareness of the KM framework and guidelines has resulted in the inconsistency of KM practices exhibited by individuals. The apparent lack of KM activity and understanding of what constitute KM practices at the individual level are also signs of an under-emphasis of KM, which could have affected the KM norms in the organisation. The motivation to practise KM is also found to be dependent on the officers instead of being driven by the KM culture, which further suggests that KM constructs have yet to be the driver for KM practices in the organisation.

Despite the above shortcomings, the participants were generally receptive of the practice of KM as they recognised the benefits of KM for the organisation and themselves. The participants acknowledged that the practice of KM is a personal responsibility. Personal responsibility is defined as the willingness to hold oneself responsible for the choices made and the corresponding outcome (Mergler, 2017:260). By holding themselves morally accountable for their actions, the staff are more likely to assume ownership and control of KM in their work. Moreover, the recognition of the practice of KM as a personal responsibility implies that the participants are likely to be intrinsically motivated to perform KM activities without the need for external incentives. There were also calls for greater efforts to cultivate the KM mindset that is necessary to develop a KM culture in the organisation. There is positivity expressed towards KM, and the initiatives to address current challenges are likely to be embraced, which is likely to result in constructive changes to the KM constructs. To bring about a positive change in

the KM culture, a multi-pronged approach is recommended to achieve the desired outcome: the top management advocates the importance of KM and initiates process reviews (e.g. reducing red tape) and system enhancements, while the mindset of the officers is shaped to embrace the KM practices. This is consistent with the proposition by scholars (Alavi & Leidner (2001); Sheptycki (2004); ALMuhairi (2016)) who have asserted that people need to prioritise their contribution to knowledge for the overall good of the organisation rather than for their agenda. This requires a shift in their mindset for them to be receptive to KM.

The following section would examine the relationship between human resource management practices (such as job rotations) and how KM is practised, with the likely effect on knowledge continuity.

5.4 Job Rotations and Knowledge Management

In the preceding section, the study has examined the participants' perception of the KM culture in the SPF and the KM performance in the organisation. The findings from the data have established the relationship that exists between the KM culture and the motivation to practice KM. With that as the basis, the second element in the conceptual framework (see Figure 4.1) to be investigated is how the participants perceive the practice of KM in the organisation (*empirical* level) from the occurrence of the regular staff movements (*actual* level), as a result of the casual mechanisms resulting from the KM culture in the organisation (*real* level). The findings would address the research objective to understand the effects of knowledge transfer and retention in the SPF due to staff movements, set out in Section 1.3. This section expands on the findings established in Section 4.4. As mentioned in the literature review in Section 2.6.3, previous studies have established that knowledge, particularly tacit knowledge, is lost when there is staff movement (Sutcliffe & Weber, 2003:42; Lahneman, 2004:617).

5.4.1 Influencing Factors of Job Rotations on Knowledge Management

Job rotations are regularly practised in the SPF; they are an integral part of human resource management practices to encourage officers to explore the various functions of the police force after performing in a role for several years (typically 3 to 5). Despite the merits of this practice, Zhao (2009:93) cautioned that it may have detrimental effects on the implementation of KM in an organisation. This study would determine if the nature and frequency of such mandatory work arrangements affect the performance of KM, particularly on knowledge continuity. This is because when there are staff movements, knowledge from the current job holders will have to be transferred to the incoming officers to ensure work continuity. However, the KM process is not limited to handing over archives at the point of transfer, as it takes place throughout the tenure. The attitude and actions (or inactions) of the job holder during the entire period will determine the quality and quantity of knowledge retained and consequently affect knowledge continuity during staff movements, while the behavioural aspect of staff members practising KM is likely to shape the KM norms of the organisation.

There is a diverse range of job opportunities available in the SPF. From crime-fighting and maintenance of public order roles at the front line to the planning and supporting roles at the backend, officers can choose the roles that best match their interests and strengths. The ability to choose and switch roles freely implies that the functions performed can be drastically different, and their previous or current knowledge may not apply in their next role. Nevertheless, the findings reveal that regular job rotations did not negatively affect the participants' attitudes towards the practice of KM. The conclusion is consistent with that of Stoddart (2019:69), as he posits that staff mobility reduces the inertia in engaging in knowledge sharing and collaboration (see Section 2.6.3). The finding of this study has practical implications for human resource practitioners and organisations with interest to introduce job rotations, as it highlights that the frequency and duration of the job rotations, rather than the practice of job rotations, could be the underlying influence on the efforts of officers in KM.

At the micro-level, instead of fulfilling a fixed duration for all positions, the participants have advocated varying the frequency of rotation. The rate of recurrence should consider the nature of the job function to address the specific needs of KM rather than standardising it for all posts. For those who did not highlight this change, it could suggest that they feel that current KM practices are adequate and effective enough for there to be no need for further changes. Alternatively, it could be inferred that they place greater importance on the opportunity to assume different positions regularly than on the KM needs of the organisation, as regular job rotations offer staff exposure to different aspects of policing, which is commonly perceived to be beneficial for their career development.

It was posited from the results of the study that the expected duration of a job influences staff members' attitudes towards the practice of KM. However, the association between the variables (i.e. does higher frequency or shorter duration of job rotations promote the practice of KM?) is inconclusive, as the results appeared to be mixed. Also, the investigation into the relationship between the variables is beyond the scope of this study. Further research, which takes these variables into account, is suggested to determine the optimal duration for each job posting, such that a balance can be struck between fulfilling human resource management requirements and encouraging the performance of KM among officers (see Section 6.4).

With the finding that perceptions of the practice of KM could be affected by how regular job rotations are being practised, the next step is to examine the relationship between knowledge continuity and the practice of job rotations.

5.4.2 Job Rotations and Knowledge Continuity

Although the earlier findings revealed that regular job rotations did not negatively affect the participants' attitude towards the practice of KM, the study noted that knowledge is perceived to be lost during job rotations, which leads to a lack of knowledge continuity. The conclusion is consistent with past literature (Griffiths *et al.*, 2016:284) which stated that there will be a loss of knowledge when staff

leave the organisation. One participant, Mark, pointed out that "there can never be 100% of knowledge retained and handed over to the new officer". This statement depicts the KM situation experienced by officers, as there will be details that may not have been effectively retained and transferred. A possible cause is the differing perspectives of what constitutes useful knowledge, due to subjective interpretation by the knowledge holders in their course of duty (Sanders & Henderson, 2013:254). Also, the practice of KM may be simplified to an extent where the knowledge of 'how' or 'why' a decision is reached is not shared, and only the 'what' to do is passed down (Aydin & Dube, 2018:404). As a result, only knowledge deemed to be useful by knowledge holders is retained, but the practice of selective knowledge retention has inadvertently led to knowledge loss in the process (see Section 2.6.1).

The above proposition has considerable implication for the SPF and other public and private organisations that are practising job rotations. First, ignoring the 'how' and 'why' will impede the growth of knowledge in the organisation, as these elements help to develop the depth of knowledge. Otherwise, the understanding of the subject becomes superficial and the rate of knowledge growth may become stagnant. Second, precious time will also be wasted to revisit the issues that have been examined in the past. More importantly, the loss of important background information in the consideration of past decisions will hinder the evaluation of future options, which may lead to inconsistency in the decisions made. This is an area of concern, particularly in policy and legislation formulation where the guidelines and laws are constantly revised according to the current situation and anticipated needs of the society in the foreseeable future, with reference to the context of how past decisions were made.

A lack of resources or guidelines could be dismissed as a leading cause of knowledge discontinuity, as the majority of participants stated that they were aware of the available means for knowledge retention and transfer during staff rotations. Looking at the subject from another angle, this finding suggests that there is a limit to what the KM tools and resources can aid in the KM process. Instead, it was revealed that the induction period during job transition is ineffective, as the handing and taking over of responsibilities are happening

concurrently, and such an arrangement may not be conducive for learning. This is because the outgoing officer needs to divide themselves between handing over the work and guiding the incoming officer, with acquiring the knowledge for his/her new role at the same time. The consideration reinforces the earlier finding in Section 5.3.2, which suggests that the driving force behind the practice of KM lies in the officers, as they recognise the importance of sharing their knowledge with the incoming officers for the latter to assume their roles effectively. Another possible factor that stifles the process is that the actual period of work overlap is usually less than stipulated, which participants considered insufficient for the effective transfer of knowledge.

The findings of the current study are consistent with those of Sutcliffe and Weber (2003:42), as they construed that it is a challenge to ensure the effective transfer of knowledge during job rotations due to limited effort to share knowledge extensively between staff members and across project teams and departments. More importantly, the experienced phenomenon highlighted the disparity between how the management and the officers perceived knowledge: the management associated knowledge as a physical asset that could be 'handed over' from one person to another in totality within a short time, while the officers recognised that knowledge is not just about the computer files and physical documents, but also the mental mapping between issues that cannot be effectively reduced in writing. Issues dealt with by police are becoming increasingly complex and dynamic and are no longer isolated but may have implications across departments. It is very challenging for the outgoing officer to condense many years of knowledge acquired from the role and communicate it to the incoming officer, expecting him/her to internalise within a short time. Therefore, the current arrangements for handing/taking over may no longer be adequate, as more time is needed to appreciate the issues and internalise the knowledge. The recommendation concurred with the study by Seba *et al.* (2012:379) on the Dubai Police Force, as the scholars suggested that staff be given the time for knowledge sharing and KM activities. The perception that knowledge is a physical asset further attenuates the presumption of the rate which knowledge can be transferred and internalised, which will have a direct bearing on the effectiveness of the knowledge transfer and the potential knowledge loss. The assumption that knowledge can be

transferred verbatim within a short time may no longer be realistic; business processes involving job rotations need to be reviewed to address the current challenges and those in the foreseeable future.

At the individual level, the knowledge recipients are also contributing to the effect of knowledge loss. The process of knowledge transfer is not simply the action of 'copy and paste' from the knowledge holder to the recipient verbatim; it takes time for the knowledge recipient to internalise the knowledge as posited by Nonaka *et al.* (2000:5) (see Section 2.6.3). Moreover, the absorptive capacity of an individual (the capability to facilitate the development and utilisation of existing and new knowledge) seems to have an impact on the effectiveness of KM. The process of knowledge transfer would be increasingly difficult if the recipients were unable to relate to the knowledge passed down to them due to their unfamiliarity with the subject matter. Although the experience of candidates may not be the main criteria in job selection as compared to the need to offer equal career development opportunities and job exposure to all, it may be beneficial to consider the relevance of candidates' experience for specific roles to ensure a greater degree of job continuity, as organisational needs ought to be prioritised over individual inspirations.

The discussion in Section 2.5.2 showed that the nature of policing involves considerable use of tacit knowledge. This form of knowledge is usually difficult to transcribe into documents for retention and transfer, which further hinders the sharing of knowledge. Furthermore, when the knowledge creators or carriers leave their positions for another, they take the accumulated knowledge along with them (Biygautane & Al-Yahia, 2010:6). One of the participants, Candice, commented: "People may not be retaining and documenting their knowledge, as most are keeping the knowledge only in their heads". Sudden staff departure is another concern as it may result in significant knowledge loss. For instance, another participant, Jim, felt that "if there is sudden staff departure, there may be a vacuum, as the other colleagues may not know how to perform the required tasks, especially since knowledge could be primarily tacit and not documented". The finding is not limited to the SPF, as the public organisations are also dealing with the challenge to capture and preserve institutional knowledge while dealing with

the increasing rate of attrition and retirement (Cong & Pandya, 2003:29; Edge, 2005:45). Staff turnover is a teething problem, and the SPF is not spared. While the private sector may plug the knowledge gap by importing externally through targeted hiring, the building up of social capital through external hiring is limited for police officers, since their specialised training is only available in-house and cannot be easily acquired elsewhere. The hiring of foreign nationals to supplement policing needs is also not commonly practised, thereby further aggravating the need for effective KM in the police force. Furthermore, critical organisational knowledge vested with the staff can still be lost if the knowledge is not managed appropriately.

The challenge for the organisation is how best to capture the knowledge of individuals and to store it in the organisation than with the individuals (Griffiths *et al.*, 2016: 284). It was further highlighted by Hafeez and Abdelmeguid, (2003:155) and Aburawi and Hafeez (2009:1109) in the literature review (see Section 2.6.3) where they stipulated that knowledge may not be readily imported by external hiring to fill up a knowledge gap, especially in the field of law enforcement. The situation could worsen in the near future if active steps were not taken to retain this form of experiential knowledge (see Section 2.6.3). Also, in a bureaucratic public organisation, there is a tendency to associate job competency with the rank the officer is holding. Positions can be artificially filled by job rotations or transfers, and officers are expected to fulfil the responsibilities expected of the ranks they are wearing. However, the seniority of the rank does not automatically equip the officer with the corresponding level of subject knowledge, particularly tacit knowledge. This will become a growing problem if the management ignores the need for effective KM and the importance of a suitable job fit between the positions and the skill set of the officers. Empirical evidence has also revealed a possible correlation between knowledge continuity and succession planning, which could be further explored in future studies as outlined in Section 6.4.

To summarise, this section addressed the research objective defined in Section 1.3 to investigate the practice of staff movements and the relationship with the performance of knowledge transfer and retention in the SPF. Practitioners and

other public and private sector organisations could consider the research findings on the KM implications of job rotations in relation to the KM culture of the organisation. The empirical findings concluded that the frequency and duration of regular job rotations as part of human resource practice have influenced the practice of KM in the SPF. It is inconclusive from the responses whether more/less frequent job rotations or a longer/shorter duration of each job posting will encourage the practice of KM, which could be investigated further in future research. A deduction from the findings is the apparent loss of knowledge because of job rotation, although there are more favourable responses from those willing to practise KM than from those who are less motivated. The disparity suggests the existence of discontinuity along the chain of knowledge transfer between the sender and the recipient. Another issue beyond job rotation is the risk of knowledge loss as a result of sudden staff departure; the increasing specialisation of work and the difficulty to retain and transfer tacit knowledge imply that knowledge may be held by a specific few and could be lost if not managed carefully. The organisation may consider reviewing current measures to strengthen the KM processes.

The next element to be examined is the participants' perception of knowledge collaboration and sharing with stakeholders, and the challenges faced in the process.

5.5 Collaboration and Knowledge Sharing

The findings of the perceived level of knowledge collaboration and sharing between the SPF departments and with the external stakeholders were presented in Section 4.5. This section interprets the findings and how they compare with the current literature and how the perception of the knowledge collaboration and sharing with the internal and external stakeholders has shaped the performance of KM in the SPF. From the critical realist angle, the receptiveness of the participants (*empirical* level) in response to engaging in knowledge collaboration and sharing between internal departments and external stakeholders (events) (*actual* level) is

another index for appraising the KM culture (causal mechanisms) of the organisation at work (*real* level).

Previous research has suggested that the provision of an effective and responsive public service such as policing depends on close cooperation and timely information sharing between the law enforcement agency and its community partners (Uthmani *et al*., 2010:394; Plecas *et al.,* 2011:121). Therefore, there is value in harnessing knowledge that can be derived from the wider environment through external alliance and co-creation (Donoghue *et al*., 1999:53; Chavez *et al*., 2005:93).

5.5.1 Collaboration with Internal Stakeholders

The results showed that the SPF departments were open and willing to share knowledge at a macro-level. The findings challenge the previous research by Sheptycki (2004:312) and Tan and Al-Hawamdeh (2001:318) on the knowledge sharing ethos between internal departments of police forces; the scholars posited that the diversity and compartmentalised structure of the policing units will create knowledge silos and discourage the sharing of knowledge across units and departments (see Section 2.6.2). An explanation for the contradictory result is the existence of a strong team culture in the SPF, where relationships are built on trust. Specifically, the level of trust that internal departments have with one another as well as with external parties is assessed (see Section 2.6.2). Another reason is the recognition of the interdependency of the functional groups by the officers: despite the SPF being highly compartmentalised, with 38 frontline, staff and specialist departments, the functions of these units are specialised but not isolated; the departments are not self-contained and they recognise their dependency on one another for knowledge and resources, as no single department can function effectively on its own.

Additionally, the results derived from this research rejected the claim by Sheptycki (2004:312) and Brodeur and Dupont (2006:17) that knowledge sharing among departments of a police organisation is not achievable despite operating under the same organisation. Also, the identified knowledge sharing ethos has

dismissed the likelihood that knowledge is used as a political tool or a resource of power in the SPF (see Section 2.6.2). There are also no apparent signs from this study to suggest that the willingness to share knowledge at the micro-level results from the anticipation of fulfilling mutual benefits as posited by Syed-Ikhsan and Rowland (2004:96). Although the results from this study did not reveal the highlighted issues of the reluctance to share knowledge and wielding knowledge as a political tool, it should not be assumed that the organisation is free from the underlying problems due to the sample size and the possibility of self-censorship exercised by the participants. Nevertheless, the management needs to be vigilant to take immediate actions to eradicate the development of the unfavourable KM culture once it is sensed in the organisation.

On the other hand, the willingness to engage in knowledge exchange among the internal departments is also a sign that knowledge is perceived to be a public good in the SPF, which is motivated by moral obligation and community interest (Ardichvili *et al.*, 2003:69). The consensus could likewise be explained by the high level of trust placed upon one another such that any information request is to achieve the organisational goals rather than to advance the agenda of a person or department (see Section 2.6.2).

5.5.2 Collaboration with External Stakeholders

In addition to the appreciation of the perceived knowledge sharing culture between the SPF internal departments, the study seeks to find out the participants' willingness to engage in knowledge collaboration with external stakeholders. There are similarities between the attitudes expressed by the majority of the participants in this study and those described by Donoghue *et al*. (1999:53) and Chavez *et al*. (2005:93) as there is perceived value for SPF to engage in knowledge collaboration with the external stakeholders. The findings are also consistent with the literature that polices forces in other jurisdictions are moving towards stronger collaboration with their foreign counterparts (Griffiths *et al.*, 2016:271). The strong support for external collaboration is also an indication that the staff members recognised the positive value of KM for business performance (Carrillo *et al.*, 2003:1; Cong & Pandya, 2003:25) (see Section 2.6.4).

The suggested areas of collaboration include exploring new operational frontiers, the adoption of new technologies, the learning of best practices from industry experts and the sharing of training facilities with other government agencies. The findings signalled that the participants are supportive of collaborations that require the sharing of classified information with the external stakeholders that could result in greater benefits for the SPF (see Section 2.6.4). This could be attributed to the recognition of the need to improve specific areas of the organisation which outweighs the obligation to protect the secrecy of the information. It also showed the openness of the participants towards knowledge collaboration that may bring about a greater good for the organisation, even if there is a need to reveal the guarded internal processes to external parties to identify the root of the problem that the organisation is facing.

5.5.3 Knowledge Collaboration Challenges

Other than human perception towards knowledge collaboration, business processes may also impact the scope of knowledge sharing in the organisation (see Section 2.6.2). The findings provide evidence that the security classification of the materials is restricting the extent of sharing by the knowledge holders. One participant, Dave, opined that "the need to maintain the confidentiality of information may prevent sharing as well. This is because one may be unsure of how much the other requesting party is privy to the requested information shared". While the external parties may be keen to form a partnership with the SPF, the desire to protect operational secrecy may result in limited disclosure of information. This may lead to the reluctance of further collaboration as the details are not adequate for the external parties to appreciate and develop useful solutions. This is synonymous with the discussion in Section 2.6.4, where the reluctance to disclose confidential information inhibits the examination of the root cause of the organisational concerns, limiting the exploration of possible solutions. The findings from this study contest the study by Syed-Ikhsan and Rowland (2004), as the scholars concluded that the confidentiality of information does not impede knowledge sharing between stakeholders in a public sector setting (ibid:109). Instead of closing the doors to possible collaborations, a calibrated approach

should be taken to leverage the resources and expertise that the industry has to offer to improve the capability of the organisation. A possible course of action for the organisation is to explicitly define the principles to consider for the sharing of knowledge documents and processes, applicable to both internal and external stakeholders. The guidelines should also state clearly the designations with the authority to decide what can be shared and with whom, should the considerations be beyond the stipulated principles.

Examining the issue at a micro-level, another key challenge expressed by the participants was the uncertainty over the materials that could be shared and the access level of the recipients. Although the classification of documents has helped to categorise the secrecy of the contents (such as secret, confidential, unclassified) and prescribe the level of safeguards (such as how and where these documents are to be stored securely), an area that may be overlooked is the access control, specifically who is allowed to have access to the various levels of classified documents, to what details can the documents be shared and who should be responsible to decide what could be shared. Furthermore, issues are becoming increasingly intertwined, involving multiple stakeholders and domains of expertise, the content of the knowledge or information becomes a shared property. The review process is further complicated as the stakeholders use different yardsticks in their subjective assessment, and a collective agreement needs to be obtained from all parties instead. This is the main contributor of red tape in the process as multiple layers of approval have to be sought before the knowledge or information can be shared with others. As another interviewee, Alan, put it: “Is it really because the information is confidential? Or is it that these departments assume that they cannot share when they can actually share”?

The experienced phenomenon is also posited by Tan and Al-Hawamdeh (2001:318) as they highlighted that the need to preserve the security and confidentiality of information has shaped the mindset of the staff members to be more cautious towards knowledge sharing. Seba *et al.* (2012:373) argued against the above proposition, as they claimed that the public organisation is less worried than a private entity about disclosing vital information. Instead, the concern should the other way around, as the information and knowledge held by the public

organisations such as the SPF are sensitive (such as information concerning national security) and entrusted by the public (e.g. personal particulars) for its specific use only. Not only will disclosing such privileged information result in compromising the safety and security of the society or nation, but it will also erode the public trust that the police force has gained from the public.

One of the criteria to decide the information that an officer can assess is based on his/her profile. There are many ways in which officers are broadly categorised in the SPF: rank, designation, functions, departments, etc. However, how effective is it to grant access based on such categories without compromising the secrecy of the classified documents? While there are some guidelines for the officers' consideration when evaluating the need to share confidential knowledge, it is usually a subjective call, and the assessment may be inclined towards being more conservative. Therefore, a fundamental question to be addressed is 'does the categorisation of documents also impose unnecessary barriers to those who need access to the privileged information in their course of work'?

In summary, the last and final research objective (see Section 1.3) to determine the level of receptiveness towards knowledge collaboration between the internal departments and the external stakeholders was examined in this section. Overall, the knowledge sharing culture is evident among the SPF departments, with a strong sense of receptiveness to collaborate with external stakeholders. The findings are corroborative with the conclusion outlined in Section 4.3, as the seeming lack of awareness of the existing KM framework to govern the accessibility of classified information has undermined the collaboration efforts between SPF and its stakeholders. Without awareness of the explicit guiding principles for the officers to evaluate the shareability of such documents, it has resulted in the officers assuming the precautionary position when faced with the need to share confidential information, particularly with the external stakeholders. This has led to unfruitful discussions that are shallow and do not help to address the organisational gaps that were identified. Also, the lack of awareness of the explicit guidelines has generated unnecessary red tape that inhibits cooperation between the parties involved under the pretext of protecting classified information.

The discrepancy between the perceived advantage and actual practice of knowledge collaboration with the external stakeholders suggests that knowledge collaboration with external stakeholders has not reached its maximum potential. Consistent with the findings in the literature review (see Section 2.6.2) where it was posited that a cultural shift is necessary to foster an environment where knowledge contributes to the collective good (Standing & Benson, 2000:1110), there were calls to strengthen knowledge collaboration that will benefit all parties. Besides spelling out the guidelines under the proposed KM framework, there is also the need to further cultivate the KM aptitude and culture among the officers, which will drive the organisation towards achieving greater heights through the extensive use of knowledge.

The conceptual framework in Figure 4.1 suggests that while the imperatives can affect the performance of KM in the organisation, other factors such as technology also have a role to play in the process. The relationship between the role of technology with the other influencing factors would be elaborated in the following section.

5.6 Technology and Knowledge Management

Section 4.6 has explored the linkages between technology and the performance of KM. This section would analyse the findings and establish the associations with the literature base and examine the role of technology in supporting other influencing factors of KM identified in this study.

It was established that the increased adoption of information technology and the increasing IT competency of officers have enabled police forces to leverage on KM principles and practices (Tan & Al-Hawamdeh, 2001:312). However, the technology put in place needs to be robust. IT system enhancement was highlighted as the key improvement area to encourage the practice of KM in the SPF. In particular, the search function needs to be enhanced to improve the quality of the search returns. It was mentioned in the literature that the efficiency of

knowledge retrieval and sharing is an important aspect of KM, otherwise, valuable knowledge will remain hidden and unnoticed (Chua & Lam, 2005:12). This feature is critical for the effective performance of KM in the SPF as it was flagged in Section 4.2.3 that knowledge retention and retrieval are two of the key KM activities practised, and the ease and ability to search for the required knowledge is fundamental. The finding was consistent with the past literature, where the KM tools should be designed with the users as the focus. This is because complicated and user-unfriendly systems will significantly impact their usability (ibid:12) with the actualisation of the value of the technologies only when the employees use the solutions that are put in place (Tan & Rao, 2013:77) (see Section 2.6.5).

The limited usability of the search returns was complicated by the fact that the knowledge sources were scattered in various domains or databases, which the participants felt was a challenge when retrieving the required knowledge. This finding is aligned with the literature review as many of the legacy systems were built in silos, which posed difficulty in knowledge retrieval and consequently affected the application of knowledge (see Section 2.5.1). Also, the hassle to access various databases leads to the difficulty in retrieving the required information (Chen *et al.*, 2002:271). The above challenges were summarised by one of the interviewees, Jim: "One can simply hand over the full archive of emails and documents from one person to the next. The issue is not about the lack of information but locating the necessary details. A lot of time is spent trying to search for the information using keywords, but most of the time, the effort is wasted as the information could not be found". The results of the study echoed the conclusion by Chen *et al.* (2002:271), where the difficulty in accessing the various databases can also lead to difficulty in knowledge retrieval, which may, in turn, affect the performance of the KM practices in the organisation.

A key technological obstacle identified in the study was the limited use of the removable devices to archive and transfer documents, which has caused inconvenience and difficulty in transferring documented knowledge. In Singapore, the public service has banned the use of removable storage devices since 2017 due to the emerging cyber threats that have threatened the government's IT network (CNA, 2017). The removable storage devices (such as

USB drives) have been identified to be the leading cause of the introduction of malware and the exfiltration of data (ibid). A direct impact of the ban has affected the ease and ability to retain and transfer knowledge, particularly between officers in job rotation. Even though there are alternatives such as online storage drives that allow sharing of digital data, the process is more demanding because of the often large number of files and the limited storage capacity assigned per officer. This has led to concerns expressed by the participants that the lack of suitable data transfer alternatives has affected their ability and willingness to transfer documented knowledge. Moreover, it was highlighted in Section 5.4.2 that the overlapping period between job rotations has been reduced and was likely to affect the effectiveness of the knowledge transfer. The constraints of time and space to share the knowledge files and documents are expected to aggravate the problem further. The conclusion supports the previous studies mentioned in Section 2.6.5, which demonstrated the importance of technology towards supporting the practice of KM.

Overall, the findings in this study have shown that technology plays an important role as an enabler in the practice of KM, as it is recognised to be the tool to overcome constraints of the legacy systems and to facilitate knowledge retention and transfer to support knowledge continuity.

5.7 Research Implications

The investigation of the KM culture of the SPF and the performance of KM has produced a body of findings that have both theoretical and practical significance. This section presents the research implications from this study that have potential theoretical impacts, while the contribution to practice would be discussed subsequently in Section 6.2.

The research framework adapted from Grix (2002:180) (see Section 3.1) had been demonstrated to be appropriate for research of this nature. The choice of critical realism as the underlying philosophical assumption has served to investigate the KM culture and the performance of KM, construed from the experience of the

participants from the KM practices happening in the organisation. Through the critical realist lens, some linkages between the elements being studied have been established from the findings. Each description of the experienced phenomenon is a valid interpretation and dimension of the reality being studied and is a piece of the puzzle to appreciate the reality to be investigated. Nevertheless, there is a need to balance between being open and being selective in analysing and interpreting data (King, 2004:267). While the discerned patterns indicate the shared experience of the issue being studied, the aberrated viewpoints suggest that there are alternative angles to look at the same issue beyond the common lenses. These exceptions offer the diversity of the qualitative data, which may construe a different understanding of the subject. The choice of conducting qualitative research has also served the needs of the study by collecting rich quality data that not only described the various accounts but also provided the required context for analysis.

Thematic analysis (see Section 3.5) was evaluated to be a suitable data analytical tool for this study. Its flexibility implies that it is highly adaptable for different organisational contexts, while the systematic approach defines the structure and steps that can be considered for adoption for future research of a similar nature. This method has been used for this study involving 22 interview transcripts without the use of computer-based qualitative analysis software. For larger datasets with a large number of texts, the use of the software could be helpful to facilitate the depth and sophistication of analysis (King, 2004:266). However, it should be recognised that the effectiveness of the software is only as good as the ability of the researcher to code the parameters to be considered.

The conceptual framework (see Section 2.7) developed for this study had been an effective blueprint for mapping out the influencing factors that have contributed to how the KM performance is perceived in the SPF. The empirical evidence has shown that the influencing factors of KM culture: human resource management practice (in the form of job rotations), the need for innovation, and collaboration influence the performance of KM in the organisation. The effective use of technology and the ability to identify and manage knowledge have also been found to positively impact the practice of KM in the organisation.

Before conducting this research, it was found out that the KM literature related to the police forces is limited (Seba *et al.* (2012); Massaro *et al*. (2015); McEvoy *et al*. (2017)), even more so for the SPF (see Section 1.1). This can be attributed to the difficulty in gaining access to the data and staff of the police organisation. Nevertheless, KM is equally critical in the policing context as compared to other public sector agencies such as healthcare, as KM is necessary to support operational effectiveness and efficiency. To the researcher's best knowledge, there has not been any empirical study conducted previously to investigate the KM culture and practices in the SPF. The conclusion is consistent with that of Massaro *et al*. (2015:545), as they highlighted a lack of research with attention on the practice aspects of KM in the public sector, particularly on specific organisations or research that engage the practitioners as researchers or authors. This research serves to bridge the knowledge gap as it is believed to be the first empirical study dedicated to the study of KM in the SPF. It contributes significantly to the study of how KM culture is crucial to the performance of KM practices in an under-studied area of a law enforcement agency in a public sector in Asia, Furthermore, this study was carried out by the researcher who is a member of the organisation and is directly involved in the practice of KM. Conversely, if the research is carried out from the perspective of an outsider, the discussion of the KM subject could have resulted in a different interpretation of the experienced phenomenon, as the latter may not depict an accurate picture of the experienced phenomenon in its context. The analysis has provided a deeper understanding of the influencing mechanisms of KM, and how these elements have shaped the way KM is perceived and practised by the staff. The findings have potential beyond the SPF, as the conclusions could also be generalised to other public sector or private organisations that have similar KM practices or contexts. This research will also be of interest to human resource practitioners involved in managing staff development through job rotations, as the implications to knowledge continuity were discussed.

The findings present the challenges of the management of knowledge in the organisation; the risk of loss of precious organisational knowledge and experience is real if there are no interventions to address the current issues. Also, the

development of the capability of the organisation will be limited if knowledge collaboration with external stakeholders is restricted by its internal processes. Nevertheless, the inferences from the results highlight the opportunities the management can explore to improve the way knowledge is managed in the organisation. A two-pronged approach could be introduced: one is to target the positivity of the staff to encourage them to practice KM by emphasising the benefits of KM to the organisation and highlighting the benefits KM can bring to the staff themselves, and the other is to simplify the organisational processes in order to eliminate red tape. Therefore, this research study has made an original contribution to the literature by establishing the significance of the KM culture and practices in influencing the performance of KM in a law enforcement agency, grounded in the public sector context in Singapore.

5.8 Summary

The summary of the findings established from this study is presented in Figure 5.2. Among the conclusions, the perception of the KM culture in the SPF to be in the developmental stage stands out among the rest as it has affected the performance of KM in the organisation. The inference is evident from the participants' responses about the seeming lack of awareness of the KM framework and guidelines. This has led to inconsistency in the performance of KM as the individuals decide for themselves the manner and extent of KM to be practised. Also, the perceived lack of awareness of the KM activities is an indication of KM being under-emphasised in the organisation. The study has also concluded that the perceived lack of awareness of the KM framework and guidelines has resulted in knowledge loss during job rotations and has inhibited knowledge collaboration between SPF and its internal and external stakeholders.

This study has identified the challenges to the performance of KM, which are related to the identification and management of knowledge (see Figure 5.2). The results highlighted the difficulty to locate the required knowledge when they practise KM. The participants attributed the problem to the irrelevant search results as the search functions do not return sufficiently useful information. On a

related note, the difficulty to locate the required information was emphasised, as it was fragmented, and the sources were not consolidated. As a result, they need to put in extra effort to string up the details from various knowledge sources. However, the staff may not get the full picture of the issue they are trying to comprehend if they are unfamiliar with the subject.

The result is in tandem with Chen *et al.*s' (2002:271) findings that the difficulty in accessing various databases can also lead to difficulty in information retrieval. The findings are consistent with the conclusion in Section 2.6.1, where the ability to locate and extract the required knowledge is crucial in this digital age where there is an overload of information. The increase in demand for quality information also signals the complexity of the cases handled by the police, which calls for the consolidation of knowledge sources that organisational knowledge is used effectively. This presents a potential area of improvement for SPF's consideration.

Although compliance and consistency of practices are desirable for the performance of policing duties, it was reported that outdated documents make it difficult to be achieved. The policing climate and environment are constantly evolving. There is a need to put in place new procedures quickly to ensure consistency in practices while continuously reviewing the applicability of the established processes to ensure the practicality of the current practices. However, the demands for policing have increased and the limited manpower is spread thinly as a result. This has led to a mounting challenge to balance between the differing needs which may have resulted in the perceived inadequacy.

There is little doubt that technology plays a crucial role as an enabler of KM in the organisation. Particularly, this study has established the importance of technology in supporting the retention and retrieval of knowledge and facilitating knowledge continuity. It is, therefore, necessary to continue investing in technology to improve and simplify the organisational processes, which will encourage the performance of KM in the organisation.

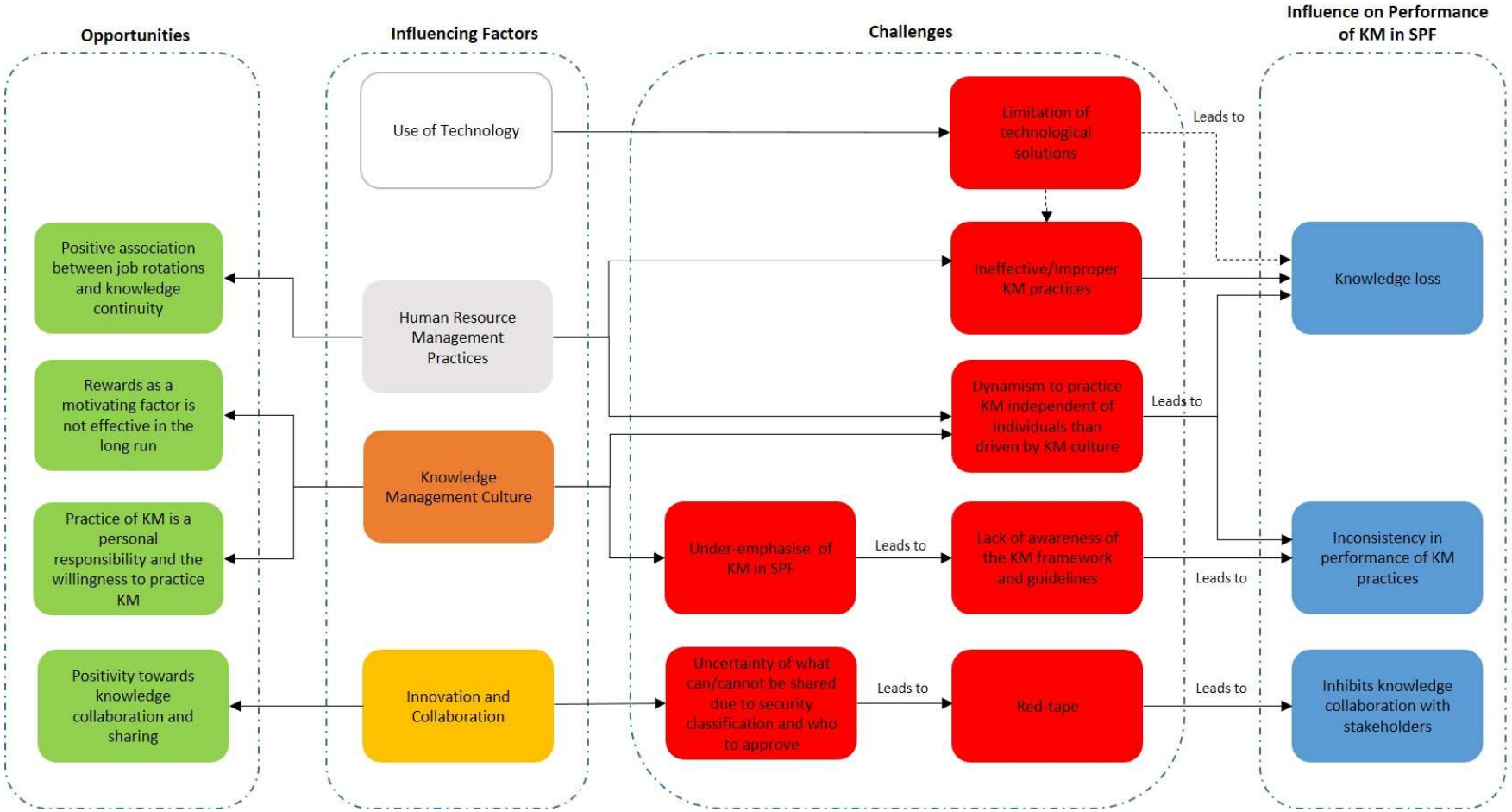


Figure 5.2: Summary of Research Findings (author's own)

Despite the above challenges, the empirical evidence also indicates that the majority of the participants recognise the importance of KM and are receptive to practising KM in their course of work. The positivity exhibited towards the willingness to perform KM is crucial for the improvement of KM and its culture in the SPF, as it suggests that the organisation is ready to accept constructive changes to the current work processes to support the practice of KM. As highlighted in Section 2.6.2, the proposed transformation needs to be managed carefully to overcome the resistance to change.

In the next chapter, the contribution this research makes to practice will be discussed. As with any other research, there are also limitations to this study. The limitations will be investigated, and the corresponding suggestions for future research will be discussed in greater detail. The researcher will conclude this study with a reflection on positionality to address the researcher's effects and his experience conducting this research.

CHAPTER 6 - CONCLUSION

6.1 Introduction

The literature had established that KM in the public sector, particularly in policing, did not receive much attention (McEvoy *et al*., 2017:37). This could be attributed to the difficulty of gaining access to law enforcement agencies by external parties, coupled with the practice of treating information with strict confidentiality. This research systematically uncovered the perceptions of the staff members towards KM and offers the rare opportunity to appreciate the KM culture and practices in a law enforcement agency, as well as the linkages between the influencing factors of staff movements and innovation and collaboration on the performance of KM in the organisation.

In the preceding chapter, the empirical findings derived from the data collected from the semi-structured interviews were analysed. The major themes were uncovered from the perceptions of the participants on their experience with the KM culture and practices in the organisation. The empirical evidence reflected on the perceptions of KM in the organisation and identified the key challenges to be addressed.

This chapter documents the contributions to practice derived from this research. It also serves to inform the implications of the findings and propose recommendations that SPF could consider adopting to improve its KM practices. The limitations of this research and suggestions for areas of further research would be highlighted. The chapter concludes this research with the researcher's reflection on conducting this study.

6.2 Contribution to Practice

This section presents the contribution to the practice of this study, a continuation of the discussion in Section 5.7 focusing on the theoretical significance. This study investigated the current KM culture and the performance of KM of the SPF. The

findings of this research revealed the current state of the KM culture in the SPF and investigated the challenges faced in its KM performance. The empirical investigation provides the management and supervisors with the understanding of the staff members' perception of KM, which may encourage them to benchmark against their expectations and trigger improvement in the KM culture and processes.

The study suggested that the current state of the KM culture in the SPF is in the developmental stage, as it was found out that there had been a general lack of awareness of the formal KM framework in place, resulting in the inconsistency of KM practices by staff members. While the informal approach of promulgating KM best practices may be preferred over formal guidelines (see Section 2.6.2), the approach needs to be augmented with training from industry practitioners instead of leaving it totally to the prerogative of the staff. There were also calls by the participants for greater emphasis on KM and more coordinated efforts on the KM practices in the organisation. It was apparent that the perceived insufficient emphasis of KM by the management might have also resulted in the above conclusion. If unaddressed, this could subsequently result in difficulty of adopting the KM tools and techniques by the staff. Another conclusion from the study underlined that KM was not as actively practised at the individual level than at the departmental level, as the participants differentiated the effort required for KM activities between the two positions. The disparity in the level of commitment suggests that regular supervision has been effective in ensuring that KM was practised at the departmental level, and it should be extended to further improve the KM practices at the individual level.

Despite the above shortcomings, the findings suggested that the staff recognised the advantages of KM and were receptive to the practice of KM. The positive mindset expressed by the staff improves the likelihood of success of the KM initiatives to be implemented. This is because the exhibition of the positive attitude by the staff, coupled with a favourable KM environment, are more likely to encourage the performance of KM as depicted by the Theory of Reasoned Action (Fishbein & Ajzen, 1975:16) (see Section 2.6.2). Overall, the results suggest that using rewards as the motivating factor to encourage the performance

of KM is likely to achieve temporary benefits, but the strategy may not be effective in shaping the knowledge sharing behaviour the longer term.

It was also revealed that there was knowledge loss resulting from the regular staff movements. A probable cause could be the performance of the KM activities was left to the discretion of the staff members, which suggested that the practice of KM has not been integrated as part of work processes. The lack of coordinated efforts has resulted in inconsistent practices affecting the extent of knowledge retention and transfer, thereby impacting knowledge continuity during job transitions. Sufficient time to allow the transfer and internalisation of knowledge are critical. However, the practice of KM might not have given sufficient emphasis as the period for the handing/taking over of duties was often compromised due to prioritisation of other operational demands over KM. Also, the difficulty to retain and transfer tacit knowledge, an important skill set among frontline officers, was identified as a key challenge. Staff movements are part of the human resource management practice that take place throughout the year and involve a considerable number of officers; delays in improving the capability to retain and transfer such a skill set and experience may lead to extensive loss of valuable organisational knowledge (see Section 2.6.3). This finding interest human resource practitioners and other public and private organisations as regular job rotations have practical implications on the practice of KM beyond achieving the desired staffing outcomes.

In terms of knowledge sharing and collaboration, the empirical findings challenged the argument that knowledge sharing is not readily practised within police organisations (Tan & Al-Hawamdeh (2001); Liebowitz & Chen (2003); Sheptycki (2004); Brodeur & Dupont (2006)). Instead, it was found out in this study that the SPF internal departments were generally open and willing to share knowledge readily with one another. The difference in the outcomes may be explained by the strong interdependency among the internal departments in the SPF as compared to the counterparts in other jurisdictions where the departments can operate independently. Also, the receptiveness towards knowledge sharing among the staff was likely to be motivated by the expectations of achieving reciprocal benefits and the fulfilment of shared organisational goals. The finding

also suggests that any resistance to knowledge collaboration among the internal stakeholders may be due to external factors rather than reasons pertaining to self-preservation or self-worth.

The results reported that there was a strong level of receptiveness towards knowledge collaboration among external stakeholders to improve the organisation. However, the lack of the awareness of the KM framework and the absence of the guiding principles have contributed to the self-generation of red tape, as officers sought approvals from multiple levels before they were convinced that the internal information was suitable to be shared externally. This may also suggest the lack of empowerment of the officers by the management to share knowledge and information based on the officers' assessment. Empowerment involves delegation of power by the managers and breaking away from the deliberating psychological effects of traditional bureaucracies (Spreitzer & Doneson, 2005:2); it is characterised by independent decision making than waiting for approval from a supervisor (ibid:2). However, scholars have also cautioned that the process of empowerment is not telling people that they are empowered as it demonstrates that the power is still held by the authority, but creating an environment for staff members to be self-empowered (ibid:21). This notion re-emphasised the importance of creating the appropriate KM culture in the organisation for the practice to be institutionalised. Besides the perceived lack of empowerment, the officers may also be concerned about committing mistakes by sharing more than they should; this highlights the need for the management to be more tolerant towards mistakes and adopt the 'no-blame' culture to encourage the application of knowledge within the organisation (Sensky, 2002:392; Tan & Rao, 2013:93).

In addition, the findings revealed that the classification of documents might have an adverse effect on knowledge sharing. This is because although the classification helps to define the secrecy of the documents and the necessary safeguards to protect such materials, it does not prescribe the type of staff authorised to receive such information. Furthermore, the higher the classification level, the less readily available are such documents on a common platform (e.g. shared online drives). As a result, the knowledge holders adopt a more

precautionary and risk-averse approach by restricting the access of these documents even if the recipients may require such knowledge in their course of work. The situation is worsened when collaborating with external stakeholders as the officers are preoccupied with safeguarding the classified information, which limits the effectiveness of such external partnerships. This calls for further review and changes to the business processes for the organisation to benefit from such external collaborations.

Technology has been established to play a vital role in supporting the practice of KM. However, the IT systems were assessed by the participants to be insufficient to meet the demands of the practising of KM. Particularly, the inadequate search function, storage issues and difficulty of use have to be addressed to further enhance the KM experience. The contribution to practice derived from the findings is that knowledge continuity cannot be achieved fully in practice; knowledge loss is inevitable as discontinuity exists in the knowledge transfer process between the knowledge holder and the recipient. This is contrary to the assumption that knowledge is actively retained by current knowledge holders and can be transferred readily when staff movements happen (see Section 2.6.3). Therefore, there is a need to review and strengthen the current staff movement policies and departmental practices to account for the KM needs.

More attention should also be paid to mitigate the loss of knowledge due to sudden staff departures, as such unanticipated exits are likely to result in loss of knowledge that cannot be replaced readily from alternative sources. In the SPF, the practice of regular knowledge scribe and the openness in sharing of knowledge has been effective against knowledge loss. Knowledge is retained through continuous documentation efforts, and the materials are shared among members in the same department periodically to keep everyone up to date of the current developments. Furthermore, the practice of cross covering each other's duty also improves the resiliency of knowledge continuity, since knowledge is constantly held by two or more staff at any time.

Leadership is pivotal to the success of KM in the organisation, as it can affect the factors in the work environment and organisational culture that will influence the

attitude towards the practice of KM (Seba *et al.*, 2012:379). Therefore, management has a major role to play as it needs to drive the KM culture in three areas. First, there is a need to clearly define and advocate the KM framework and its integration with the work processes; standards and procedures should be prescribed to cover the KM activities of focus to minimise ambiguity and encourage consistency over the practices. Second, the current IT systems need to be enhanced, particularly the data storage and search functions. The restriction imposed on the use of USB and external storage devices under the pretext of digital security has affected the way knowledge documents can be archived and transferred. Although there are alternatives in place such as the online drives, the storage capacity is limited, and it poses a problem for officers to retain their knowledge. The search function for the various databases also needs to be more intuitive such that it can access multiple sources and have the capability to return more accurate results. Third, the management needs to further encourage the practice of KM in the SPF. The officers need to have buy-in and recognise how KM can be beneficial to themselves and the organisation. Also, it should not be taken for granted that the encouragement of willingness to practise KM is going to be perpetual; there should be continuous efforts to sustain the KM culture and its practices.

It is anticipated that the issues surfaced from this study could provide useful insights into the KM situation of the organisation. Also, the suggested solutions identified above could be considered by SPF for implementation. Furthermore, the study could be capitalised by other law enforcement agencies to compare and examine their internal operations to understand their KM culture and devise the approach to KM implementation.

This section has highlighted the findings from the study and the recommendations that can be applied in practice. Nevertheless, it is notable that there are areas that are beyond the defined scope of this study and, therefore, cannot be covered. The following section would examine these issues in more detail.

6.3 Limitations of the Current Study

Despite the effort put into the design and planning of this research, limitations are inevitable as with all other research. The details of possible constraints would be elaborated on in this section, with the suggested improvements to be considered for further research in the subsequent section.

For this research, the selection of the sample is limited to those involved in performing staff work due to the need to address specific research objectives such as the effect of job rotation and the level of knowledge collaboration (see Section 3.3). As a result, some groups such as the frontline police officers have been excluded. However, their opinions matter as they may offer alternative viewpoints that will enrich the quality of this research, particularly on the management of tacit knowledge, which is an important source of knowledge in policing. This is an area that presents an opportunity for further research.

Among the participants who have agreed to be interviewed, there is a risk that they have volunteered to take part in this study as they have a purposeful intent, which may cause self-selection bias that distorts the data collected. However, there is no evidence from this study to suggest that the presumption is true. The participants have agreed to take part in this study because they could resonate with the research topic and the association with their work, and they were forthcoming to share their opinions and experience as compared to those who have declined. Therefore, their willingness to take part should not be interpreted as a deliberate attempt to skew the results in a specific direction, as the researcher has explained to them that this study is not commissioned by the SPF.

Another limitation of this research is the tendency of the participants to focus on their current roles when offering their perspectives, despite their past exposure in previous functions. As a result, the majority of them tended to express their viewpoint based on their most current experience while a handful managed to draw from their earlier encounters. Nevertheless, most of the participants were selected from different departments so there is still a good representation of the

opinions from around the organisation. There is prospect for further research by extending the scope of the research to solicit opinions from other departments and from officers performing different job functions that are not covered in this study.

The focus of the experienced phenomenon is on a single organisation, the SPF. The relevance of the findings for other organisations may be limited due to the context and unique characteristics of the SPF. The assessment is consistent with past research conducted on a single public sector organisation (e.g. (Amber *et al.*, 2018:19), coupled with the difficulty to interpret the results due to organisational and cultural differences. Nevertheless, the findings of this research could still be applicable as a reference for organisations with similar attributes, such as other police forces, uniformed organisations and security agencies. While the replicability of the conclusions of this study should be assessed and compared carefully with the characteristics of the target organisation, the generic elements such as the research methodology and the semi-structured interview guide may be applicable for future research in a similar context, as these materials have been carefully refined through the empirical application that has been established in this research to be suitable for this area of study.

Finally, KM is a wide and diverse topic to be examined; the subject of culture is equally extensive. As a result, it is not possible to conduct a comprehensive analysis of culture within the scope of this research, after considering the more critical literature on KM and the application to SPF. It is, therefore, necessary to set boundaries to manage the extent of the area of study. Despite the constraints, this research has contributed to the knowledge of this subject by offering a valuable perspective into the KM culture of a police force. Further research could be anchored on this study to expand the appreciation of culture in this field of study.

Notwithstanding the limitations presented above, this study put forward findings founded on empirical evidence that comprehends the KM culture and the performance of KM of a law enforcement agency, which serves as a reference for other similar organisations and provides the foundation for further research in a

similar context. The suggestions for future research are presented in the following section.

6.4 Recommendations for Further Research

The preceding discussion in Section 6.3 has recognised the limitations of this research and has also identified several opportunities for further research, primarily focused on expanding the scope of the research to include the opinions of the different user groups and those performing diverse job functions to achieve a more holistic appreciation of the experienced phenomenon.

In addition to the above suggestions, it was suggested in Section 5.4.1 that there appears to be an association between the frequency and duration of the job rotations that could have influenced the efforts put in by the officers towards KM (i.e. does higher frequency or shorter duration of job rotations promote the practice of KM?) Further investigation into the relationship between the variables and the effect towards the KM efforts may provide further insights into the behavioural aspects, which can be used to modify the current job rotation policies to improve the performance of KM in the organisation.

With the introduction of the new initiatives to address the challenges, it will be meaningful to conduct a longitudinal study to track and evaluate the effectiveness of the implementation over a period of time. Suitable performance indicators could be established at the onset and the investigation of the impact conducted at the end of the duration, with cross-sectional studies to be carried out at regular intervals to chart the progress and provide intermediate feedback for assessment and fine-tuning of the initiatives.

To summarise, this section has suggested a systematic approach for further research. First, the scope of the research can be expanded to include the opinions from a larger sample as that will offer a more accurate appreciation of the state of the current KM culture of the organisation. With a better understanding of the challenges, the next step is to formulate suitable measures to address the issues

identified. Lastly, further study could be conducted to monitor and evaluate the effectiveness of the initiatives. It should be noted that patience needs to be exercised as it may take more than one iteration of the proposed approach for observable improvement to the KM culture. Furthermore, any positive effect derived from the initiatives may be eroded over time. Therefore, the improvement to the KM culture and the efforts to sustain it should not be perceived to be a once-off exercise but a continuous process.

The examination of the results and recommendations from the qualitative research would not be complete without taking into consideration the positionality of the researcher. The sections that follow would provide the insights of the researcher's self-reflection and discuss the likely influences on this study.

6.5 A Need for Reflexivity

Self-reflection is a way to establish trustworthiness in qualitative research (Nowell *et al.*, 2017:3). Reflexivity is the process of examination and reflection on the role of subjectivity in the research process (Palaganas *et al*., 2017:427). It involves the researcher to continually reflect upon his/her beliefs and outlooks and be self-aware of how one's perspectives and agenda can affect the research process and influence the outcome (ibid:427). Brown (2010:238) posited that reflexivity is also the acknowledgement of subjectivity as "a different researcher, or the same researcher in a different frame of mind, might write a different report from the same data". Furthermore, this happens because different researchers have a different focus and find value in different artefacts or behaviours, even when examining the same issue or phenomenon (Dean *et al*., 2017:275). The researcher embarked on this research journey after he had worked in the SPF for about eight years as a police officer. Having been job rotated in the organisation several times to take up different roles and responsibilities, he recognises the lack of coordinated effort in KM practises across the organisation. This comparison arises from realising the differing practice between SPF and his previous experience in the private sector for about five years before joining the police force and envisioning how much further SPF would have progressed if KM has been a more

integral part of its processes. Through this research, he aims to investigate the current KM culture in the organisation, the practices and how the process could be improved. Since this is a self-funded doctorate study, he is not under any pressure from his organisation that may affect the way he conducts this research or influence his interpretation and presentation of the findings.

The researcher is conscious that his direct involvement in this research requires his interpretation of how the participants identify with the observed phenomenon and to construct meanings within the framed context of this research. The interpretation of meaning is dependent on the experience and the interaction of the participants which may differ among individuals (Krauss, 2005:760). Since interpretation depends on how one perceives the subject, the establishment of his background would enable the readers to rationalise his thoughts and intentions. As a researcher and a member of the organisation, he also has his interpretation of the KM culture through his lenses and there is the tendency to presume that the participants share his perspective as well. However, with the awareness that each account is only a selective reconstruction or version of the reality, each of the accounts should not be interpreted as the reality itself (Gilbert, 2008:426). Instead, his role as a researcher is to collate the different perspectives and interpret the meanings from the participants' viewpoint; there is no need for him to dominate his outlook over the responses of the participants as his viewpoint is just another account of the reality.

Reflexivity entails the search for the congruence between the professional principles declared by the researcher and the actual professional behaviour (Attia & Edge, 2017:37). This concept calls for the alignment between what we as researchers believe in and what we practise in our research, so it encourages transparency and the reflection of actuality. However, Ruby (1980:156,157) cautioned that one could be reflective without being reflexive as the exhibit of one behaviour does not necessarily lead to the other. Likewise, this occurs because reflexivity goes beyond examining one's thoughts and actions; reflexivity involves investigating the person's philosophical outlook, and how the adopted position, and any associated pre-conceptions, can affect the outcome.

The discussion of reflexivity is incomplete without the mention of positionality. Bourke (2014:3) posited positionality as "a space in which objectivism and subjectivism meet", and our subjectivities are always changing with our social positions (ibid:3). "The positionality that researchers bring to their work, and the personal experiences through which that positionality is shaped, may influence what researchers bring to research encounters, their choice of processes, and their interpretation of outcomes" (Foote & Bartell, 2011:46). The understanding and making explicit of the researcher's positionality illuminate what he/she sees or does not see during the research (ibid:47). Notably, the area of fieldwork is intensely personal, as our positionality (in terms of race, sex, ethnicity, position based on class) and our personality (shaped by socio-economic and political environment) play a fundamental role in the research process, in the field and the final research report (Palaganas *et al*., 2017:428). For this research, the researcher's positionality (in terms of race, sex, ethnicity, position based on class) and personality (shaped by socio-economic and political environment) have a negligible effect on the research outcome; the research is unlikely to trigger negative emotions or painful sentiments since it is neither a sensitive nor a personal topic. As the study is self-funded and not commissioned by the organisation, the participants are observed to be willing to express their opinions freely.

Positionality and subjectivity are tempered both spatially and temporally and may change over time (Sultana, 2007:382), which makes the documentation of the temporal position necessary. It is recognised that the influences of personality are more likely to happen at the data collection and data analysis stage, where there is a need to interact with the participants when collecting data and interpret the results with the researcher's perspectives and background knowledge. Therefore, any possibility of preconceptions that led to deliberate actions and decisions introduced in the research would be detailed; it would be declared and reported in this research to inform the readers, akin to a reflexive journal recommended by Lincoln and Guba (1985:109).

Dwyer and Buckle (2009:57) highlight the internal struggle of researchers: "Insider or outsider: To be or not to be". Thus, this involves the researcher to

negotiate between the positions of 'insider' and 'outsider' during the research, rather than being assigned one or the other subject position fixedly (Soni-Sinha, 2008:518). Scholars (e.g. Merriam *et al*. (2001); Chavez (2008); Dwyer & Buckle (2009)) have debated that assuming either of the position has no absolute advantage over another as there are costs and benefits to be weighted. It is natural for the participants to consider the researcher as an insider and his insider role is anticipated to glean advantages such as access, rapport, impact, trust, openness and cultural sensitivity (Merriam *et al*., 2001:407; Mason-Bish, 2018:3). Indeed, being a member of the SPF, the researcher's insider status has helped him to gain rapport and trust from the participants as they regarded him as a colleague and a member of the organisation. Sharing similar work experience with the participants has aided in his understanding of the terminologies and internal processes they have shared without the need for further elaboration. Conversely, being an insider has its dilemmas as he may overlook different perspectives and insights than if he approached the study as an outsider (Mason-Bish, 2018:3).

Further, the same insider position has led the participants to assume a shared level of experience or understanding and the participants may fail to explain specific experiences fully if they assume that the researcher shares their experiences given his involvement in the organisation. The researcher's attempt to 'fill-up the blanks' using his own words risks introducing his views or he may overlook details which may differ from what the participants meant, thereby tantamount to shaping the results. Although it is posited that the results derived from both stances are equally valid despite the differences in their orientation (Merriam *et al*., 2001:415), the possibility of the influence of the researcher's perspectives cannot be ignored for both stances in practically: how would others perceive his position as a researcher and assess the rigorousness of the work he has produced?

To overcome the above dilemmas, Chavez (2008:490) advocated the need to exercise critical reflection to account explicitly for the potential advantages and disadvantages of his presence. Also, there is a need to establish the degree of similarities and differences between the participants and the researcher so that he can be aware of its implications (ibid:491), particularly on how the participants would perceive him to be, which may affect how and what they would share.

Perhaps one of the most challenging tasks is to differentiate what he knows from what he sees (ibid:491). Being an insider, he is aware of the risk that his experience may colour his views and lead him to identify the reality the way he wants it to be.

The attempt to locate the optimum standpoint on the continuum to address the research objectives seems to suggest that positionality affects how the researcher balances objectivity with subjectivity, which is likely to affect the interpretation and influence the research outcome. As Palaganas *et al*. (2017:426) observed, "it is impossible to remain 'outside of' one's study topic while conducting research". Likewise, Patton (2002:41) also agreed that complete objectivity is impossible while pure subjectivity undermines creditability. Although it is agreeable that either extreme is very difficult to be achieved in practice, it may be more appropriate to say it is a challenge to achieve either objectivity or subjectivity in totality than to claim the impossibility. Further, it is also futile to discredit the dichotomy of both axes since the angle of support depends on the assumed outlook of the individuals. Therefore, instead of avoiding or ignoring the possibility of such partiality, researchers are encouraged to exercise reflexivity and be upfront with their positions and subjectivities as these are not negative but should be recognised as part of the process that is unavoidable (Sutton & Austin, 2015:226). While the researcher has also attempted to disconnect from the research process to be truly objective, it is almost impossible to achieve that practically; the analysis and interpretation of the findings are still to a certain extent influenced by his perspectives and beliefs. Although there are attempts to identify and remove such personal injections from the process and the research paper, this is an area that has further room for improvement.

Although the value of self-reflection and the need to declare the researcher's assumptions and preconceptions should be appropriately acknowledged, it should not be misused as a convenient tool to walk away from exercising bias and injection of predispositions in the research. Furthermore, this is utilised because a deliberately tilted piece of research towards achieving one's agenda is meaningless. Instead, reflexivity should be exercised to position the research and

knowledge production, so that ethical commitments can be maintained (Sultana, 2007:376).

To sum up, the researcher recognises that his background and agenda and how his status as an insider/outsider can influence the research. He also surmises that it is almost impossible to distance himself entirely from the research to be truly objective. With the critical reflection of his background and involvement in the research process, he would like to offer a higher degree of transparency of positionality and the potential effects beyond just presenting the research findings. The additional information will enable the readers to evaluate the likely influence on the research findings of his direct involvement.

6.6 Researcher Effects

Bias can be defined as any trend or deviation from the actuality of data collection, data analysis, interpretation and publication, which can lead to false conclusions (Šimundić, 2013:12). Pannucci and Wilkins (2010:619) draw particular attention to the effect of bias taking place throughout the research. In qualitative research, a researcher serving as the instrument for data collection is a potential source of bias, which may pose a threat to the true value of the data obtained and affect the meaning of the analysed data (Chenail, 2011:257). Also, Macdonald and Headlam (2009:37) cautioned that the researcher should maintain 'total objectivity' when conducting a qualitative study to avoid external influences on the responses by the participants.

In contrast to the above viewpoint, Patton (2002:51) argued that neutrality does not mean detachment. He disputed the purpose of being distanced and detached from the observed to reduce bias, as he asserted that human behaviour could only be understood through empathy and sympathetic introspection derived from personal encounters (ibid:49). To emphasise the significance of empathy and neutrality, Patton (2002:52,53) coined the term 'empathic neutrality' to highlight the need to be non-judgemental while comprehending the motives and feelings of people in a social-cultural context.

As a researcher conducting a qualitative study, he would endeavour to maintain the empathic neutrality position as the inquiry involves his interpretation and opinions. He also knows that his direct involvement in the research process may cause the likelihood of research bias as it involves his perceptions, behaviour and actions (e.g. body language, mood and tone of voice) when he interacts with the participants. Bourke (2014) posited that bias could arise from the participants as well. He pointed out that since research involves a shared space shaped by the researcher and the participants, the identities of both have the potential to impact the research process (ibid:1). Likewise, this happens because identities come into play via our perceptions, not only of others but of how we expect others to perceive us (ibid). These influences have the potential to affect the validity and reliability of the findings as it is challenging to identify the effect of bias and correct it.

While absolute objectivity may not be achievable practically for a qualitative inquiry as bias may be introduced subconsciously and may even be beyond our control, the effects of bias should be mitigated wherever possible. As Rose (1985) has put it, "there is no neutrality. There is only greater or less awareness of one's biases" (Rose, 1985 as cited in Dwyer & Buckle, 2009:55). It can be construed that research bias cannot be avoided entirely regardless of the choice of research paradigm, although it should be recognised that the phenomenon is more apparent in qualitative research. Shenton (2004:73) highlighted that despite the presence of bias, emphasis should be focused on preserving the creditability, transferability, dependability and confirmability of the research, but Golafshani (2003:600) believed that "the credibility of a qualitative research depends on the ability and effort of the researcher".

Selection bias may arise when identifying the informants (Pannucci & Wilkins, 2010:622). While the selection of informants for qualitative research is by purposive sampling to include the full range of opinions available, there is the possibility that such a selection process may favour those that are known to be more cooperative or proactive to the researcher (Shenton, 2004:65). Moreover, the effects of selection bias cannot be circumvented by adopting a large sample

size or through statistical intervention (Pannucci & Wilkins, 2010:620). Nevertheless, a mitigating measure is to introduce an element of randomness into the selection process (Shenton, 2004:65) whereby informants performing similar roles could be selected at random.

The researcher is mindful of the possibility of selection bias as the population is his colleagues and the experience (or lack thereof) from their current or previous working relationship may influence his choice during sampling where some participants may be preferred over others. He is equally mindful of the need to remain neutral and seek the necessity of breadth and depth in qualitative research, which requires him to solicit responses from different participants based on their roles and suitability to address the research objectives. The role of the participants would be emphasised when sampling to minimise the effect of selection bias. Besides, the selection of the participants would be randomised whenever possible.

The researcher may contribute to conformity bias by introducing personal preferences and preconceptions to the research, which may influence the research outcome (Shenton, 2004:72). As Patton (2002:50) has pointed out, "the ideals of absolute objectivity and value-free science are impossible to achieve in practice and are out of questionable desirability in the first place since they ignore the intrinsically social nature and human purposes of research". Even though the statement suggests that the influence of the researcher's perception during the research is inevitable, it does not imply that distorted research outcomes are tolerated. The effect may be controlled through triangulation where convergent of findings can be achieved with using more than one data source or research method (Golafshani, 2003:603; Shenton, 2004:73), which is expected to be achieved in this research. Otherwise, the possible limitations of the study and the probable weaknesses should be acknowledged and made known in the thesis for the consideration of those intending to use the results (Shenton, 2004:73).

The limitations of this study would be highlighted in the concluding section to address the probable weaknesses identified and the delimitations that shape the scope of this research. To further minimise the effects of biases, there would be regular reviews throughout the research (Shenton, 2004:67).

The next section maps out the researcher's reflection on the experience of conducting this research and what he has learnt from this research journey.

6.7 Reflections on the Experience of Conducting This Research

The DBA journey is demanding and intellectually challenging due to the rigour of the programme. The absence of a prescribed syllabus, the autonomy to set the pace and direction and the distance-learning arrangement is refreshing yet challenging. With the need to balance the time among family, job and research, the researcher can better appreciate the criticality of time management and the importance of prioritisation.

In addition to the adjustments to the researcher's lifestyle as a result of taking up this programme, another challenge that was encountered in conducting this research is the need to maintain the confidentiality of data while ensuring that the information revealed is suitable to be published openly. To research on the SPF is a challenging mission as the police force is characterised by an emphasis on bureaucracy. Several levels of approvals had to be sought before permission was granted to the researcher to conduct research based on this organisation. This has made him realise the importance of having access to data before conducting any research, which is also emphasised by the University. Also, the information in the police force is highly classified; the researcher had to de-sensitise the information to be presented in order not to disclose more than necessary. This study has also reinforced the importance of the ethical considerations when conducting research, such as the need to maintain the secrecy of data gathered and ensure that there will be no harm caused to the participants.

Since the researcher is conducting this research alone without engaging any external help, the hands-on approach has built up his confidence and competence to handle the various aspects of conducting research. This ranges from establishing the literature background to identifying the research methodology, data collection and the subsequent analysis. Also, this programme has allowed

him to have a deeper appreciation in the area of KM and its applicability in the organisation he is working for. As such, the researcher has become more mindful of the way he practices KM and the need to advocate its importance to his co-workers. Also, the data collection exercise has improved his soft skills in interview and communication, which are beneficial in his capacity as a middle manager and a researcher. The research skills are practical as he could adapt them for other research, which would not have the opportunity to develop these skill sets if he did not pursue this programme.

In addition to the suggestions for future research on KM as outlined in Section 6.4, he is also interested in investigating the impact of rewards and recognition towards staff motivation. The researcher is confident that his research journey does not end at this thesis and he is looking forward to producing research that could result in constructive changes in his organisation and be of value to other police forces.

6.8 Final Words

The findings from the study showed that the KM culture had not been rooted in the SPF; the lack of awareness of a formal framework has led to inconsistency in how KM is practised in the organisation, which has resulted in knowledge loss over time. This finding is consistent with the conclusion derived from the literature. As with any other research, it is necessary to recognise that the scope is definite and there are limitations present. These suggest potential areas for further research and the recommendations are suggested within this chapter.

The researcher has come to the end of this research journey. While the completion of a doctorate programme is considered to be an achievement, it is the journey that has been most rewarding and fulfilling.

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ANNEX A - Interview Consent Form

Title: "Knowledge Management (KM) Culture and Its Influence on Knowledge Management Performance in the Police Force: A Critical Realist Approach"

Purpose of the Study

This research aims to understand the extent of influence that KM culture has on the performance of KM in the SPF. It seeks to find out if the KM culture affects the performance of KM during staff movements, as well as to establish the level of KM collaboration among the SPF internal departments and its external stakeholders. This research is expected to offer an insight into how KM is perceived and practised in the SPF and the possible areas for improvement that could be introduced.

Data Collection

- Data collection will be through an interview conducted by the researcher.
- Notes will be produced to assist the researcher in transcribing the data.
- All transcribed data and audio recordings (if any) will be securely kept and are to be destroyed one year after the completion of this Doctoral thesis.
- You have the option to review the transcribed data to ensure its accuracy.
- A copy of the summary of the results is available upon request, upon the completion of this Doctoral thesis.
- The interview is expected to take up to 50 minutes.

Confidentiality

- Your identity will be coded, and this information will be kept secure and separate from the transcript for security and confidentiality. Alternatively, you can select an alias of your choice to represent yourself.
- All responses will be treated with strict confidentiality, and no information will be attributed to any participant.
- The results presented would not be able to identify your participation from the rest of the participants.

Right to Refuse or Withdraw

- I understand that I can choose not to answer any of the questions.
- I am aware that I can choose to withdraw my participation at any time.

Acknowledgement and Consent

- I give my consent to participate in this study voluntarily.
- I understand that I will receive no payment or benefit in kind for participating in this study.
- I ***give/do not give** my consent for the interview to be audio recorded to transcribe the data.
- I ***want/do not want** to review the transcribed data.
  *(*delete as appropriate)*

Name of Participant	Participant's Signature	Date

Name of Researcher	Researcher's Signature	Date

I will be given a copy of this consent form to keep.

Contact Information:

Researcher: Edward Tan
Doctor of Business Administration Candidate
Edinburgh Business School
Heriot-Watt University, UK
Email: bht1@hw.ac.uk

ANNEX B1 – Semi-Structured Interview Guide (For Pilot Study)

Introduction

Hi <*Name of participant*>,

Thank you for accepting my request to participate in this interview and giving your consent in the Consent Form (Refer to **Annex A**).

Pre-Commencement

- Please be reminded that this interview aims to find out your perspective towards the research question. There are no right or wrong answers.
- I will be taking notes during the interview to transcribe the data.
- *(If the participant has agreed to the audio recording)* I will commence the interview together with the audio recording.
- Do you have any questions before I commence with the interview?

Interview

[Personal Particulars]

Participant code:	
Interview date / time:	
Gender:	
Age:	
Rank / Designation:	
The number of years served in the SPF:	
Current and previous SPF departments served:	

[Knowledge Management (KM) practices]

1. What are the KM activities that you usually perform in the course of your work? Can you describe the specific tasks that you do for each of the activities mentioned?
   [To find out the types of KM activities performed by the participant]

2. What are the resources (e.g., Information and communication technology (ICT) systems) and processes (e.g., Standard operating procedures (SOPs), directives) that you use or follow when performing KM activities?
   [To identify the references and resources available for KM and whether they are perceived to be sufficient. Can be triangulated with the internal guidelines/directives]

3. What are the challenges that you face when undertaking KM activities?
   [To find out the difficulties experienced by the participant when carrying out KM activities]

4. Do you think that KM is an individual or organisational responsibility?
   [To establish if KM is perceived to be a personal or corporate responsibility or both]

[Perception of Knowledge Management and the culture in the organisation]

5. How would you describe the KM culture in the SPF? (Is the KM effort in SPF integrated or fragmented?)
   [To establish the KM culture as perceived by the participant]

6. Do you perceive knowledge to be a public or private good in the SPF? In your opinion, do others perceive it the same way as well? What could be the possible reasons and what are the implications towards the KM culture in the SPF?
   [To establish the perceived ownership of knowledge in the organisation and the effects on KM]

7. Do you think that KM is an integral part of the work processes practised in the SPF? Is it actively emphasised and supported by senior management? (What could be the reasons for your observation?)
   [To understand the level of integration of KM with the business processes and the level of importance placed upon KM by the senior management]

8. Do you think that the performance of KM can be further encouraged through rewards or incentives? (If yes, is it sustainable or effective in the long run? If no, what measures could be taken?)
   [To find out if rewards or incentives can be the motivating factors to improve the performance of KM and the effectiveness and sustainability in the long run]

9. What do you think are the challenges to further improve the KM culture in the SPF?
   [To find out the barriers that impede the improvement of KM culture in the organisation]

[Perspective towards staff movements and how it influences the knowledge transfer and retention]

10. How would you describe the attitude of the staff towards knowledge retention and transfer during job rotations? (What could the reasons be?)
    [To understand the outlook of the staff towards KM during job rotations]

11. Do you think that knowledge is retained and transferred effectively during job rotations? (What could the reasons be?)
    [To find out if there is knowledge continuity during job rotations]

12. Are you aware of the guidelines and resources available for knowledge retention and transfer during job rotations? (Are these adequate and effective?)
    [To identify the available guidelines and resources to support the KM function. Can be triangulated with the internal guidelines/directives]

13. As far as KM is involved, what advantages and disadvantages do you associate with job rotations?
    [To establish whether the perceived advantages of job rotations outweigh the disadvantages with regards to KM]

[Receptiveness towards knowledge collaboration between the internal departments and the external stakeholders]

14. In your opinion, do you agree that some of the SPF staff and departments are still unwilling to share knowledge despite establishing the need to do so? (If yes, is the resistance due to personal agenda, such as office politics, unfriendly working relationship or self over organisational gains?)
    [To understand if the unwillingness to engage in KM activities is due to personal reasons]

15. "Even though police departments love to say that they like to share information, what that means is that I like to get your information and not necessarily give you mine" (Sanders & Henderson, 2013: 255). Is this statement a reflection of the disparity between the expected behaviour and actual KM performance in the SPF?
    [To establish if there is a disparity between the expected and actual performance of KM in the organisation]

16. Do you think that there is value for the SPF to engage in knowledge collaboration with external stakeholders to innovate and improve its competencies and capabilities? (If yes, are we doing enough?)
    [To find out if knowledge collaboration with external parties is of value for the SPF]

17. Can you describe the challenges that SPF face to further encourage its staff from knowledge sharing and collaboration within the organisation and with external stakeholders?
    [To find out the challenges to further encourage the SPF staff from knowledge sharing and collaboration with external parties]

[Recommendations to encourage the practice of Knowledge Management in the organisation]

18. Can you suggest ways to improve the performance of KM at the individual, departmental and organisational level?
    [To identify the possible limitations and the associated recommendations to improve the performance of KM in the organisation]

Conclusion

- Do you have anything else to add?
- We have come to the end of the interview session. Thank you.

ANNEX B2 – Semi-Structured Interview Guide (For Main Study)

Introduction

Hi <*Name of participant*>,

Thank you for accepting my request to participate in this interview and giving your consent in the Consent Form (Refer to **Annex A**).

Pre-Commencement

- Please be reminded that this interview aims to find out your perspective towards the research question. There are no right or wrong answers.
- I will be taking notes during the interview to transcribe the data.
- *(If the participant has agreed to the audio recording)* I will commence the interview together with the audio recording.
- Do you have any questions before I commence with the interview?

Interview

[Personal Particulars]

Participant code:	
Interview date / time:	
Gender:	
Age:	
Rank / Current job function (e.g. Invest, Planning, Operations, Support, etc):	
The number of years served in the SPF:	
SPF departments served (current and previous):	

[Knowledge Management (KM) practices]

1. What do you think are the purposes of knowledge in the SPF?
[To find out how the participants perceive the purpose of knowledge in the organisation]

2. Are you familiar with KM and its practices in the SPF? What are the KM activities that you practice now and in your previous postings?
[To find out the participants' understanding of the scope of KM and the activities practised]

3. Are there processes (e.g. Standard Operating Procedures (SOPs), directives) that you follow/observe when performing the KM activities? What are the resources that you use?
[To find out the references and resources available for KM. Can be triangulated with the internal guidelines/directives]

4. What are the challenges that you face when performing KM activities?
[To find out the difficulties experienced by the participant when carrying out KM activities]

[Perception of Knowledge Management and the culture in the organisation]

5. How would you describe the KM culture in the SPF? How does the KM culture influence your attitude and practice of KM in the organisation?
[To establish the KM culture perceived by the participant]

6. Is KM actively practised in the organisation? Do you think that KM is an integral part (or a residue) of the work processes in the SPF?
[To understand the level of participation of KM and the integration of KM with the business processes]

7. Have you been informed/trained/made aware of any KM-related practices in the roles you are performing/have performed? Is KM actively emphasised and supported by the supervisors and senior management?

[To find out the emphasise of KM and the level of importance placed upon KM by the senior management]

8. Do you think that the performance of KM can be encouraged through rewards or incentives?
(Follow up: If yes, is it sustainable or effective in the long run? If no, what measures could be taken?)
[To find out if rewards or incentives can be the motivating factors to improve the performance of KM and the effectiveness and sustainability in the long run]

9. Do you think that the KM culture can be improved in the SPF? How?
[To identify solutions to improve the KM culture in the organisation]

[Perspective towards staff movements and how it influences the knowledge transfer and retention]

10. Do you think that the regular job rotations have influenced the attitude of the staff in practising KM, as they know that they will not be in a position for long and the accumulated knowledge in the current post may not be used in their next posting?
[To understand the outlook of the staff towards KM during job rotations]

11. Do you think that knowledge is retained sufficiently and transferred effectively such that there is knowledge continuity after job rotations?
[To find out if there is knowledge continuity during job rotations]

12. Are you aware of the guidelines and resources available for knowledge retention and transfer during job rotations? Are these adequate and effective?
[To identify the available guidelines and resources to support the KM function. Can be triangulated with the internal guidelines/directives]

[Receptiveness towards knowledge collaboration between the internal departments and the external stakeholders]

13. Do you think that the SPF departments are open and willing to share knowledge with one another?
[To establish if the internal departments are open and willing to engage in KM activities with one another]

14. Do you think that knowledge collaboration with external stakeholders will be beneficial to innovate and improve SPF's competencies and capabilities? What could the possible areas of collaboration be?
[To find out if knowledge collaboration with external parties is of value for the SPF]

15. What are the challenges that SPF needs to overcome in order to further encourage its staff to share knowledge and collaborate within the organisation and with external stakeholders?
[To find out the challenges that limit knowledge sharing and collaboration with internal and external parties]

Conclusion

- Do you have anything else to add?
- We have come to the end of the interview session. Thank you.

ANNEX C – Main Study Results

Summary of the Participants' Profile

Pseudonym	Service Scheme	Department / Unit	Job Function	Gender	Age	Years of Experience	Number of Job Postings
David	Uniformed	Line	Operations	Male	34	10	4
Tom	Uniformed	Line	Operations	Male	33	8	4
Warren	Uniformed	Staff	Operations	Male	33	9	4
Jennifer	Non-uniformed	Staff	Training	Female	36	5	2
Jim	Uniformed	Staff	Manpower	Male	36	9	4
Alan	Uniformed	Line	Investigation	Male	34	9	4
Eric	Uniformed	Staff	Logistics	Male	33	8	3
Daniel	Non-uniformed	Specialist	Manpower	Male	37	8	3
Marcus	Uniformed	Line	Training	Male	40	18	6
Francis	Uniformed	Staff	Planning	Male	39	18	5
Dave	Uniformed	Line	Investigation	Male	33	8	4
Howard	Uniformed	Specialist	Planning	Male	33	7	3
Smith	Uniformed (V)	Staff	Planning	Male	55	25	5
Jonathan	Uniformed	Specialist	Operations	Male	38	10	4
Olivia	Uniformed	Staff	Intelligence	Female	32	10	4
Alex	Uniformed	Staff	Operations	Male	34	10	4
Rose	Uniformed	Line	Operations	Female	35	10	4
John	Uniformed	Specialist	Operations	Male	36	16	6
Agnes	Uniformed	Specialist	Planning Operations	Female	40	17	7
Candice	Uniformed	Staff	Governance	Female	40	19	5
Steve	Uniformed	Staff	Planning	Male	47	26	6
Mark	Uniformed	Staff	Planning	Male	46	25	5

Gender proportion: • Male: 17 (77%) • Female: 5 (23%)	Service Scheme: • Uniformed: 20 (90%) • Non-uniformed: 2 (10%)
Years of experience: • Average: 13	The number of job postings participated: • Average: 4.4

Summary of the Participants' Departments

Staff Departments	
Inspectorate and Compliance Office	Administration and Finance Department
Operations Department	Community Partnership Department
Public Affairs Department	International Cooperation Department
Manpower Department	Police Licensing and Regulatory Department
Planning & Organisation Department	Police National Service Department
Police Logistics Department	Training & Capability Development Department
Police Technology Department	Centre for Protective Security
Volunteer Special Constabulary	Digital Transformation Department
	Internal Affairs Office
	Service Delivery Department
Specialist Staff Departments	
Police Intelligence Department	Commercial Affairs Department
	Criminal Investigation Department
Specialist & Line Units	
Airport Police Division	Gurkha Contingent
Protective Security Command	Home Team School of Criminal Investigation
Special Operations Command	Police Coast Guard
Traffic Police	Public Transport Security Command
Tanglin Police Division	Police Security Command
Bedok Police Division	Police Training Command
Jurong Police Division	Central Police Division
Woodlands Police Division	Clementi Police Division
Ang Mo Kio Police Division	

Note: The boxes highlighted indicate the departments the participants were from at the point of the interviews

Knowledge Management (KM) practices

Q1 - Q4 are in response to the research objective "*to examine the KM practices in the SPF*":

Q1: What do you think are the purposes of knowledge in the SPF?	
Responses received	**Number of responses**
a) For carrying out policing duties	15
b) For consistency in practices	10
c) For compliance with legislation and documented procedures	8
d) For sharing of skills and service improvements (e.g. best practices)	7
e) To provide the background to past policy decisions as inputs to future decisions	6
f) For knowledge continuity	4
Key findings: Knowledge was perceived by the participants to be the cornerstone of the performance of policing duties. Due to the nature of policing, the understanding of the police powers and legislation is necessary for the effective discharge of responsibilities. As the SPF comprises of a large number of police officers, knowledge of the documented procedures ensures the consistency in practices by the officers so that there is uniformity in the service standard provided to the public. In terms of policy formulation, knowledge provides the context and considerations to past policy decisions, which is an important input for the assessment and deliberation of future decisions. Knowledge is also needed to ensure knowledge continuity when handing/taking of roles during job rotations.	

Q2A: Are you familiar with KM and its practices in the SPF?	
Responses received	**Number of responses**
a) Familiar with KM and its practices	5
b) Unfamiliar with KM and its practices	6
Q2B: What are the KM activities that you practice now and in your previous postings?	
Responses received	**Number of responses**
a) Knowledge retention (e.g. achieve emails, folders, online depositories)	16
b) Knowledge retrieval (e.g. consultation, online depositories)	13
c) Knowledge sharing (e.g. consultation, online depositories)	12
d) Knowledge review (e.g. standard operating procedures, policies)	5
Key findings: About half of the participants did not respond directly when asked about their familiarity with the KM practices. While more participants informed that they are unfamiliar than familiar with KM and its practices, many of them were able to provide examples of the KM activities they have practised in their	

course of work when prompted. The KM activities most practised in the SPF were knowledge retention, retrieval and sharing and review, which were focused on the application than the generation of knowledge.

Q3A: Are there processes (e.g. Standard Operating Procedures (SOPs), directives) that you follow/observe when performing the KM activities?	
Responses received	**Number of responses**
a) Yes (e.g. Instructions to conduct the regular review of knowledge documents, guidelines for handing/taking over of duties during job rotations)	4
b) No - Unaware of any formal/written guidelines on KM practices	15
Q3B: What are the resources that you use?	
Responses received	**Number of responses**
a) Resources - Online depositories	16
b) Resources – Personal emails	11
c) Resources – Cloud/shared drives	8
d) Resources - Email registry system	5
e) Resources - Physical document registry	5
f) Resources - Colleagues	3
g) Resources – Others (e.g. mobile app)	2
Key findings: The majority of the participants informed that they were unaware of any formal/written guidelines on KM practices. The most commonly used resource to manage knowledge is online knowledge depositories, followed by emails and shared drives.	

Q4: What are the challenges that you face when performing KM activities?	
Responses received	**Number of responses**
a) Difficulty to locate the required knowledge (e.g. mismatch of keywords, irrelevant search results)	10
b) Fragmented knowledge (e.g. knowledge is scattered and not managed centrally)	8
c) Outdated documents	8
d) Poor KM practices (e.g. did not practice KM timely, misplace of documents)	7
e) Tedious to practice KM	5
f) Lack of access to resources/platforms	2
g) Difficulty to keep up with technology	1
Key findings:	

One of the key challenges to KM is the difficulty to locate the required knowledge. The participants attributed to the irrelevance search results as the search functions do not return sufficiently useful information. The participants also expressed their difficulty to locate the required information as the information are fragmented and the sources are not consolidated. As a result, they need to put in extra effort to string up the details, which they may not get the full picture. The outdated documents are another challenge as it makes the compliance and consistency of practices that are desired in Q1 difficult to be achieved. Some participants attributed the lack of KM practice to the tedious process.

Perception of Knowledge Management and the culture in the organisation

Q5 - Q9 aim to address the research objective "*to establish the perception of the importance of and the need for KM in the SPF*":

Q5A: How would you describe the KM culture in the SPF?	
Responses received	**Number of responses**
a) Presence of KM ideology and efforts	14
I. With emphasise for further improvements	9
b) Absence of KM culture	7
Q5B: How does the KM culture influence your attitude and practice of KM in the organisation?	
Responses received	**Number of responses**
a) Performance of KM is dependent on staff's prerogative	15
b) Recognise the importance of KM	7
c) Performance of KM is dependent on the level in the hierarchy	3
d) Performance of KM is department dependent	1
Key findings: The KM ideology and efforts are generally perceived to be present in the SPF. However, the participants recognised that the KM culture can be further improved. Despite the above, the participants have expressed their positivity towards the importance of KM. it is also identified that the performance of KM is heavily dependent on the staff prerogative.	

Q6A: Is KM actively practised in the organisation?	
Responses received	**Number of responses**
a) KM is actively practised	11
b) KM is not actively practised	9
Q6B: Do you think that KM is an integral part (or a residue) of the work processes in the SPF?	
Responses received	**Number of responses**

c) KM is an integral part of work processes	9
d) KM is not an integral part of work processes	8
Key findings: There appears to be a split in the perceived level of KM activity and involvement, as well as the level of integration of KM as part of the work processes by the participants.	

Q7A: Have you been informed/trained/made aware of any KM-related practices in the roles you are performing/have performed?	
Responses received	**Number of participants**
a) Informed/trained/made aware of KM-related practices	6
b) Not explicitly informed/trained/made aware of KM-related practices	12
Q7B: Is KM actively emphasised and supported by the supervisors and senior management?	
Responses received	**Number of participants**
a) KM is actively emphasised by management	7
b) KM is not actively emphasised by management	12
Key findings: The majority of the participants revealed that they were not informed, trained or made aware of the performance of KM-related activities. There is also a perceived lack of emphasis and support of KM by the management.	

Q8: Do you think that the performance of KM can be encouraged through rewards or incentives? (Follow up: If yes, is it sustainable or effective in the long run? If no, what measures could be taken?)	
Responses received	**Number of responses**
a) The practice of KM can be incentivised	13
I. With emphasise that it is not sustainable in the long run	6
b) The practice of KM should not be incentivised	13
I. With emphasise that the practice of KM ends up being driven by the perceived rewards	5
Responses received	**Number of responses**
c) KM should be a self-driven process / personal responsibility	12
d) Education/reminders to encourage the practice of KM	12
e) IT system improvements (e.g. Improve search function, ease of use, improve IT infrastructure, improve storage)	12
f) Formalise a KM structure or framework to encourage the practice of KM	11

g) Let KM be part of job scope/performance appraisal to encourage the practice of KM	5
h) Training will encourage the practice of KM	5
i) Need to have the time/capacity to practice KM/workload issue	3
j) Knowledge documents need to be concise for ease of understanding	2
k) Right job fit	2
l) Dedicated offices that deal with KM	2
m) Negative reinforcements / penalise non-conformance / disincentives	1

Key findings:

The participants appeared to be split between whether the practice of KM should be incentivised. For those who agreed that the practice of KM can be incentivised, they questioned its effectiveness in the long run. They felt the practice of KM should be a personal responsibility and should to be a self-driven process, otherwise, it may end up being driven by the perceived rewards which are not sustainable. System enhancement was highlighted as the key improvement area to encourage the practice of KM, particularly the search function needs to be enhanced to improve the quality of the search returns. Consistent with the findings in Q3 and Q4, the participants suggested formalising the KM framework to address the absence of a structure. Other notable suggestions to encourage the performance of KM include increasing the education efforts and making KM mandatory by incorporating it the job scope, although it is also questioned how the latter can be evaluated.

Q9: Do you think that the KM culture can be improved in the SPF? How?	
Responses received	**Number of responses**
a) Management to lead by example / top-down approach	9
b) Recognise the purpose and benefits of KM	8
c) Mindset change	5
d) Need to reduce red tape / simplify the KM process	5

Key findings:

The findings suggest that improvement to the KM culture needs to be targeted from two aspects: the management and the ground officers. The management needs to set the stage and lead by example and push the agenda down the ranks to achieve compliance. Also, the red tape needs to be cut to simplify the KM process. At the ground level, the officers need to recognise the advantages of KM for themselves as well as for the organisation. This requires a shift in their mindset to be receptive to KM.

Perspective towards staff movements and how it influences the knowledge transfer and retention

Q10 - Q12 seek to establish realities to the research objective "*to study how staff movements influence knowledge transfer and retention in the SPF*":

Q10: Do you think that the regular job rotations have influenced the attitude of the staff in practising KM, as they know that they will not be in a position for long and the accumulated knowledge in the current post may not be used in their next posting?	
Responses received	**Number of responses**
a) Did not affect attitude towards KM – more inclined to practice KM instead	14
b) Less inclined to practice KM	6
Responses received	**Number of responses**
a) Duration of posting should vary to the job nature and not standardised to allow sufficient time to build up knowledge	8
b) Expected duration in a post affects the effort in KM	6
Key findings: While the majority of the participants expressed their willingness to practice KM despite the regular job rotations, a considerable proportion was less inclined to practice KM. The job nature and expected duration of a post and its frequency were determinants of the attitude towards KM.	

Q11: Do you think that knowledge is retained sufficiently and transferred effectively such that there is knowledge continuity after job rotations?	
Responses received	**Number of responses**
a) Knowledge is retained sufficiently and transferred effectively	12
I. Officers are willing to help even after posted out	5
II. Colleagues and supervisors are alternative sources of knowledge	4
b) Knowledge is lost	17
I. Some knowledge (e.g. tacit, experience) cannot be effectively retained (e.g. by documentation)	7
c) Dependent on how much the recipient can relate to / background knowledge	7
Key findings: There was a perceived loss of knowledge during job rotations, which leads to a lack of knowledge continuity. This is despite the findings in Q10 where the majority of the participants revealed that they were inclined to practice KM despite the regular job rotations. As the nature of policing involves considerable use of tacit knowledge, such a form of knowledge is usually difficult to be transcribed into documents for retention and transfer. In addition to Q5 where the effectiveness of the KM practices was found to be dependent on the staff's prerogative, knowledge continuity is also found to be linked to the knowledge recipient and his/her background as that will affect their ability to relate to the knowledge received.	

Q12A: Are you aware of the guidelines and resources available for knowledge retention and transfer during job rotations?	
Responses received	**Number of responses**
a) Unaware of the guidelines and resources available	3
b) Aware of the guidelines/resources e.g. job overlap arrangement, job handover form	16
Q12B: Are these adequate and effective?	
Responses received	**Number of responses**
c) Ineffective job handing/taking over period	7
d) No formal instructions on the scope of handover	6
e) Restrictive use of removable storage devices is affecting the retention/transfer of knowledge	4
f) Knowledge consultation should not be constrained within the period of handing/taking over but to continue even after the incumbent has posted out	2
Key findings: Most of the participants are aware of the guidelines and resources available during job rotations. However, many think that the period allocated for the handing/taking over is ineffective, as the arrangement for both the handing/taking over is happening concurrently. Also, the actual period of job overlap is usually less than stipulated, which is insufficient for the effective transfer of knowledge. Another observation is the lack of formal instructions on the scope of handover; the guidelines only state what should be done during handover but did not describe how it should be done or the level of details required. Several participants also highlighted the restrictive use of removable storage devices has caused inconvenience and difficulty for the transfer of knowledge during job rotations.	

Receptiveness towards knowledge collaboration between the internal departments and the external stakeholders

Q13 - Q15 serve to provide insights into the research objective "*to assess the level of receptiveness towards knowledge collaboration between the internal departments and the external stakeholders*":

Q13: Do you think that the SPF departments are open and willing to share knowledge with one another?	
Responses received	**Number of responses**
a) Yes, the internal departments are open and willing to share knowledge	18
b) No, not all are open and willing to share knowledge	5
Key findings:	

The majority of the participants felt that the SPF departments were open and willing to share knowledge with one another.

Q14: Do you think that knowledge collaboration with external stakeholders will be beneficial to innovate and improve SPF's competencies and capabilities? What could the possible areas of collaboration be?

Responses received	**Number of responses**
a) Yes, collaboration is beneficial for the SPF	19
b) No, collaboration is not beneficial for the SPF	0
c) Areas of possible collaboration - Operations	7
d) Areas of possible collaboration - Technology	5
e) Areas of possible collaboration - Best practices	4
f) Areas of possible collaboration - Training facilities	2

Key findings:

There is perceived value in knowledge collaboration with internal and external stakeholders. The possible areas of collaboration include exploring new operational frontiers, the adaptation of new technology, the learning of best practices from industry experts and the sharing of training facilities with other government agencies.

Q15: What are the challenges that SPF needs to overcome in order to further encourage its staff to share knowledge and collaborate within the organisation and with external stakeholders?

Responses received	**Number of responses**
a) Overcome uncertainty of what can or cannot be shared / red tape	13
b) Overcome workload issue	9
c) Due to the security level of information/need to maintain the confidentiality of information	8
d) Cultivate the KM aptitude/mindset	8
e) Recognise the need to change/collaborate for greater benefit to all parties	6
f) More trust towards another party's agenda for the information	5
g) Overcome turf guarding mindset	3
h) Understand different organisational culture and practices	3
i) Strengthen relationship with stakeholders	3
j) Overcome inconsistencies in internal practices	2
k) Overcome complacency	1

Key findings:

The findings revealed the reasons that may inhibit knowledge sharing in the SPF, which can be divided into personal (increase in workload, mindset change, turf guarding) and organisational (need to maintain

document confidentiality, the lack of empowerment to share, red tape). To further encourage knowledge collaboration, it is necessary to overcome the uncertainty of knowledge sharing. The participants contributed it to be the main contributor of red tape in the process as multiple layers of approval have to be sought before the knowledge can be shared with others. Workload issue comes in second. A more cautious approach is adopted when collaborating with external stakeholders than internal departments due to a lack of control over how the shared knowledge is to be used. Also, the participants expressed the need to cultivate the KM aptitude and mindset to drive and cultivate the KM culture in the organisation. This could be achieved through recognising the benefit to be derived for the organisation over resistance at the personal level. Building stronger relationships and understanding different working cultures and practices are also key to improve collaboration between stakeholders.